01-09-2026

1. Green Forge:

Context: Union Minister of State (Independent Charge), Ministry of Science and Technology, Dr. Jitendra Singh inaugurated first of its kind "Green Forge" Complex at "National Agri-food & Biomanufacturing Institute" (BRIC-NABI) at Mohali.

About Green Forge:

- Green Forge facility, with its controlled simulation chambers, will enable the cultivation and experimentation of genetically modified crops under varied environmental conditions, helping researchers assess their suitability for different locations.
- Green Forge provides simulation chambers in which the quantity and quality of light, humidity and temperature can be varied to create an optimum environment for growing and experimenting with genetically modified crops.
- When a new genetically modified variety is developed, an important challenge is to determine where it can be cultivated most effectively. Green Forge can help address this by recreating different environmental conditions in a controlled setting, allowing researchers to study the response of crops before taking them to appropriate cultivation locations.

2. Magnetars:

Context: Recently, a magnetar called 1E 1547.0−5408 has produced the strongest observational case so far that an intense magnetic field can change how light travels through otherwise empty space.

About Magnetars:

- Magnetars are highly magnetised neutron stars with magnetic fields far stronger than Earth's—over one quadrillion times stronger.
- They form through the core-collapse of massive stars during supernova explosions, like other neutron stars.

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- Their magnetic fields are estimated to be about 1,000 times stronger than typical neutron stars.
- Decay of their intense magnetic fields powers the emission of high-energy electromagnetic radiation.
- They generally show slow rotation and rapid spin-down, along with strong temporal variability.
- They produce short, intense bursts and sometimes months-long outbursts, including powerful flares; magnetars are also associated with Soft Gamma Repeaters (SGRs).

3. Kamlang Tiger Reserve:

Context: Recently, the Wildlife Trust of India (WTI), in collaboration with The Serenity Trust and the Department of Environment, Forest and Climate Change, provided essential field gear and equipment to frontline staff of the Kamlang Tiger Reserve

About Kamlang Tiger Reserve:

- **Location:** Situated in Arunachal Pradesh, near the Myanmar border, within the Eastern Himalayan Biodiversity Hotspot.
- **Boundaries:** Located between Namdapha National Park (south) and Lang River (north); bounded by Lati River (west) and Tawe River (east).
- **Topography & Climate:** Characterised by tropical forests, grasslands, rivers and hills; has a predominantly subtropical climate.
- **Vegetation:** Includes moist evergreen tropical forests in foothills and subtropical and temperate forests at higher elevations.
- **Flora:** Important trees include Amari, Gamari, Hillika and Dhuna.
- **Fauna:** Hosts Tiger, Leopard, Clouded Leopard and Snow Leopard, along with Hoolock Gibbon, Leopard Cat, Himalayan Palm Civet and Slow Loris.

4. Pradhan Mantri Skilling and Employability Transformation through Upgraded ITIs (PM-SETU):

Context: Recently, the Ministry of Skill Development and Entrepreneurship (MSDE), Government of India, in collaboration with the Government of Uttar Pradesh organized the PM-SETU Industry Conclave in Lucknow.

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About PM-SETU:

- PM-SETU, a flagship initiative of the Government of India with an outlay of ₹60,000 crore, aims to transform 1,000 Government ITIs through an industry-led Hub-and-Spoke model.
- The scheme seeks to modernise infrastructure, strengthen industry engagement, improve employability outcomes, and establish National Centres of Excellence (NCoEs) in high-growth sectors, building, through stronger government-industry partnerships — a future-ready workforce equipped for advanced manufacturing and emerging technologies.
- Component I – Upgradation of 1,000 Government ITIs (200 Hub ITIs and 800 Spoke ITIs) in a Hub and Spoke model wherein upgradation includes smart classrooms, modern labs, digital content, and new courses aligned to industry needs.
- Component II – Capacity Augmentation of five NSTIs located in Bhubaneswar, Chennai, Hyderabad, Kanpur, and Ludhiana, including setting-up sector-specific National Centres of Excellence for skilling, with focus on advanced training of trainers with global partnership.

5. Sone river:

Context: Bihar and Jharkhand are scheduled to sign a water-sharing agreement for the Sone river on 31 August 2026. The pact ends a 25-year dispute that began after Jharkhand was carved out of Bihar in November 2000. The final formula allocates 5.75 million acre-feet (MAF) of water to Bihar and 2.0 MAF to Jharkhand. The total allocation of 7.75 MAF corresponds to the share originally assigned to undivided Bihar under the 1973 Bansagar Agreement. The Bansagar Agreement was signed in 1973 by Madhya Pradesh, Uttar Pradesh, and undivided Bihar.

About Sone river:

- **Origin:** A major southern tributary of the Ganga, originating from the Amarkantak Hills of the Maikal Range, Madhya Pradesh.
- **Course:** Flows through Madhya Pradesh, Uttar Pradesh, Jharkhand and Bihar; flows eastward after Bansagar Reservoir and joins the Ganga about 30 km upstream of Patna.
- **Tributaries:** Banas, Gopad, Rihand, Kanhar and North Koel.

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- **Valley:** The Sone Valley is geologically a continuation of the Narmada Valley; bordered by the Kaimur Range (north) and Chota Nagpur Plateau (south).
- **Major Projects:** Bansagar Dam (MP), Rihand Dam (UP) and Indrapuri Barrage (Bihar).
- **Significance:** It is a perennial river and an important tributary system of the Ganga basin.

6. Ramon Magsaysay Awards:

Context: Magsaysay honour for Myanmar activist, Singapore lawyer, Bangladeshi aid giver. Tommy Koh of Singapore won for promoting international dialogue and the rule of law, particularly his role in the 1982 UN Convention on the Law of the Sea; Bo Kyi of Myanmar was recognised for defending human rights and supporting political prisoners through the Assistance Association for Political Prisoners; and Runa Khan of Bangladesh was honoured for her compassion and service to the poor, especially through education, women's empowerment, livelihood creation and climate-change support.

About Ramon Magsaysay Awards:

- The Ramon Magsaysay Award was established in 1957, with the first awards given in 1958.
- It is considered Asia's highest honour and often called the Asian Nobel Prize.
- The award is presented annually in memory of former Philippine President Ramon Magsaysay.
- It honours individuals and organisations in Asia for selfless service and outstanding contributions without seeking public recognition.

7. Indus Waters Treaty:

Context: Hours after the Permanent Court of Arbitration at The Hague said the Indus Waters Treaty remains "fully in force" and called on India to "observe its obligations", the External Affairs Ministry rejected this, saying that the "very establishment of this alleged arbitral body" was a "grave violation" of the treaty.

About Indus Waters Treaty:

- It was signed in 1960 as a water-distribution arrangement between India and Pakistan.

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- It develops plans to utilize the Indus and its tributaries as a source of water.
- The World Bank mediated the agreement.
- Under the treaty signed between India and Pakistan in 1960, all the waters of three rivers, namely Ravi, Sutlej, and Beas (Eastern Rivers) were allocated to India for exclusive use.
- While, the waters of Western rivers – Indus, Jhelum, and Chenab were allocated to Pakistan except for specified domestic, non-consumptive, and agricultural use permitted to India as provided in the Treaty.

About Permanent Court of Arbitration:

- **Established:** Created under the 1899 Hague Convention for the Pacific Settlement of International Disputes; framework revised in 1907.
- **Headquarters:** Located at The Hague, Netherlands.
- **Nature:** An arbitration tribunal, not a conventional court with permanent sitting judges.
- **Parties:** Can resolve disputes involving States, international organisations and private parties.
- **Areas of Dispute:** Handles issues such as territorial and maritime disputes, sovereignty, human rights, international investment and trade.
- **Arbitrators:** It has no permanent sitting judges; disputing parties select arbitrators for individual cases.
- **India:** India is a member of the PCA and ratified the 1899 Hague Convention in 1950.

Quick Bites:

❖ The National Homoeopathy Research Institute in Mental Health (NHRIMH), Kottayam, under the Central Council for Research in Homoeopathy (CCRH), Ministry of Ayush organised a National Seminar on "Application of Artificial Intelligence (AI) in Clinical Practice and Homoeopathy" today at the NHRIMH Auditorium, Kottayam. Organised under the theme "Where Intelligence Meets Compassion", the seminar brought together experts, academicians, researchers, clinicians, practitioners and students to deliberate on the emerging applications of AI in healthcare and Homoeopathic research.

❖ The Indian Air Force International Squash Championship 2026 commenced at Base Repair Depot, Air Force Station Chandigarh marking the beginning of a prestigious international sporting event that brings together the finest squash talent from India and abroad.

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- Union Minister for Environment, Forest and Climate Change Shri Bhupender Yadav, along with German Minister for Environment, Climate Protection, Nature Conservation and Nuclear Safety H.E. Carsten Schneider, will co-chair the 4th Indo-German Environment Forum, themed 'Together For More Resilience', in New Delhi on 01.09.2026.
- NPCI International Payments Ltd. (NIPL), the international arm of the National Payments Corporation of India (NPCI), has entered into a commercial agreement with the National Interbank Processing Centre JSC (NIPC), operator of Uzbekistan's national payment system, HUMO, on 30th August 2026. The partnership enables Indian travellers to scan Uzbekistan's national interoperable QR code UZQR using their familiar UPI-enabled applications to make instant merchant payments across the country.
- The Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic Communities (DWBDNC), under the Department of Social Justice and Empowerment, is organizing "SAMAVESH UTSAV" at Bhim Hall, Dr. Ambedkar International Centre (DAIC), in the National Capital. The event is part of initiatives to ensure inclusion, empowerment and progress of De-notified, Nomadic and Semi-Nomadic (DNT) communities.
- Larak Island is a small Iranian island in the Strait of Hormuz, located south of Hormuz Island and southeast of Qeshm Island. Covering about 49 sq km, it has major strategic importance because of its proximity to the Strait of Hormuz, a vital maritime chokepoint connecting the Persian Gulf with the Gulf of Oman. Recently, the US struck Iranian rocket launchers on Larak Island, reportedly to prevent the deployment of naval mines in the Strait, after which Iran retaliated with ballistic-missile attacks on US forces in Jordan.
- Bangladesh and China have started preparations for their first "2+2" diplomacy and defence dialogue, which combines foreign affairs and defence-level talks.
- The Gulf of Mexico is a marginal sea of the Atlantic Ocean bordered by the United States, Mexico, and Cuba. In January 2025, an executive order in the United States directed the Geographic Names Information System to use the name "Gulf of America" in official U.S. listings, and Google Maps later applied the label for users inside the United States.
- The growth in India's Gross Domestic Product (GDP) stood at 7.8% in the April-June 2026 quarter (Q1 FY27), quicker than the 6.9% recorded in Q1 of last year, but slower than the 8.6% of the January-March 2026 quarter.

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- The government on Monday notified the ₹1.27-lakh-crore Semicon 2.0 programme, spelling out eligibility and incentives across the semiconductor value chain, including 40% fiscal support for silicon wafer fabs with a minimum investment of ₹20,000 crore, and sweeteners for chip design.
- The Indian Navy commissioned INS Nipun on Monday at the Naval Dockyard in Mumbai. It is the second Diving Support Vessel (DSV) of the Nistar class and will significantly enhance the Navy's capabilities in deep-sea diving, underwater intervention, and submarine rescue. Presiding over the ceremony was Chief of the Naval Staff Admiral Krishna Swaminathan. According to the Ministry of Defence, INS Nipun is a specialist platform built to undertake complex underwater operations. The vessel was indigenously designed and built by the HSL in Visakhapatnam.



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02-09-2026

1. Prime Minister Dhan-Dhaanya Krishi Yojana (PM-DDKY):

Context: Union Minister for Agriculture & Farmers Welfare and Rural Development, Shri Shivraj Singh Chouhan, today reviewed the progress of the Prime Minister Dhan-Dhaanya Krishi Yojana (PM-DDKY) at Krishi Bhawan, New Delhi. The review focused on accelerating implementation in the 100 identified districts, strengthening convergence among schemes, improving district-level performance and ensuring that interventions translate into measurable outcomes and tangible benefits for farmers.

About Prime Minister Dhan-Dhaanya Krishi Yojana (PM-DDKY):

- **Inspired by:** NITI Aayog's Aspirational District Programme; focuses exclusively on agriculture and allied sectors.
- **Coverage:** Targets 100 low-performing districts with low yields, water scarcity and limited access to resources.
- **Key aims:** Increase agricultural productivity, promote crop diversification and sustainable practices.
- **Infrastructure:** Improve post-harvest storage at panchayat/block levels and strengthen irrigation facilities.
- **Credit access:** Facilitate short- and long-term agricultural credit, including bank loans and Kisan Credit Cards.
- **Funding:** ₹24,000 crore annually for 6 years, starting from FY 2025–26.
- **Implementation & monitoring:** Ministry of Agriculture & Farmers' Welfare, with national oversight, state nodal committees and District Dhan Dhaanya Samitis chaired by District Collectors.
- **District selection:** Based on low crop productivity, cropping intensity below the national average (155%), low credit access, and geographical representation with at least one district from every State/UT.

2. India Post Payments Bank (IPPB):

Context: India Post Payments Bank (IPPB) today marks its 9th Foundation Day, reaffirming its commitment to expanding accessible, inclusive and technology-enabled financial services across the country. As part of

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the 9th Foundation Day celebrations, IPPB announced the launch of DakPay Sound Box for Merchants, designed to simplify and strengthen everyday digital payment acceptance for merchants. The Bank also announced the launch of its Digital Insurance Technology Platform, designed to provide customers with a seamless pathway to insurance solutions by connecting them with opportunities across Life, Health and General Insurance. IPPB has also introduced a Digital Mutual Fund Platform, aimed at providing customers with a simple, accessible and seamless digital investment experience.

About India Post Payments Bank (IPPB):

- India Post Payments Bank was established under the Department of Posts, Ministry of Communications.
- The Government of India owns 100% equity in India Post Payments Bank (IPPB).
- IPPB was launched on 1 September 2018.
- The bank aims to become the most accessible, affordable, and trusted bank for common citizens.
- Its core mandate is to provide banking services to the unbanked and underbanked population.
- IPPB leverages India's vast postal network to deliver banking services at the last mile.
- The bank operates through nearly 1.65 lakh post offices across India.

3. Ghepan Glacial Lake:

Context: Learning from the devastation caused by the flood resulting from a glacial burst in Nepal, the Lahaul-Spiti district administration recently decided to further strengthen monitoring and precautionary measures regarding the Ghepan Glacial Lake.

About Ghepan Glacial Lake:

- **Location:** High-altitude glacial lake in Lahaul region, Himachal Pradesh, locally known as Ghepan Lake.
- **Altitude:** Located at approximately 4,070 m (over 13,300 ft).
- **Cultural significance:** Named after Ghepan, the protector deity of Lahaul; holds religious and cultural importance for local communities.
- **Glacial setting:** Fed by three hanging glaciers and characterised by striking turquoise-blue waters.

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- **Threat:** Rapid glacier melting over the past three decades has significantly expanded the lake, increasing the risk to downstream communities.
- **GLOF risk:** Sudden failure of the lake/glacial barriers could cause a Glacial Lake Outburst Flood (GLOF) carrying large volumes of water, rocks and debris; reflects the broader impact of climate change in the Western Himalayas.

4. AstroRad:

Context: An Israeli company named StemRad has, along with Lockheed Martin, recently developed a vest called AstroRad for spaceflight.

About AstroRad:

- AstroRad is a wearable radiation-shielding vest developed by Israeli company StemRad, with support from the Israel Space Agency and Lockheed Martin.
- It is designed to protect astronauts from harmful space radiation beyond Low Earth Orbit (LEO), especially during deep-space missions.
- It aims to reduce Radiation Exposure Induced Death (REID) and prevent Acute Radiation Syndrome (ARS) from major solar particle events.
- Uses smart, selective shielding, giving greater protection to organs and tissues most sensitive to radiation while keeping the vest lightweight.
- Highly sensitive organs include the lungs, bone marrow, colon, stomach, breasts and ovaries; shielding thickness is varied according to their radiation sensitivity.
- The shielding uses a hydrogen-rich polymer, which is effective against space radiation and reduces the production of secondary radiation.
- Individual shielding elements are arranged in a scale-like flexible architecture, allowing astronauts to move comfortably while wearing the vest.

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5. Artemis Accords:

Context: The Republic of Türkiye became the 71st country to sign the Artemis Accords on 31 August 2026. The signing took place at NASA Headquarters in Washington, D.C., and placed Türkiye in a U.S.-led framework for peaceful and cooperative space exploration.

About Artemis Accords:

- Launched in 2020, the Artemis Accords are a non-binding set of principles guiding civil exploration and use of outer space.
- They aim to establish common principles for responsible, peaceful and sustainable space exploration.
- The Accords were co-led by NASA and the U.S. Department of State, along with seven founding nations: Australia, Canada, Italy, Japan, Luxembourg, UAE and UK.
- India is a signatory to the Artemis Accords.
- Key principles include peaceful exploration, transparency and sharing of scientific data, interoperability of systems, emergency assistance, and preservation of space heritage.
- They also support responsible extraction and use of space resources consistent with the Outer Space Treaty, and safe disposal of orbital debris.

6. Totalisers:

Context: The Supreme Court on Tuesday sought the Centre's response on the use of "totalisers", which are machines designed to consolidate and count votes from multiple electronic voting machine (EVM) control units simultaneously without revealing booth-wise voting trends, as a "fall-back option".

About Totalisers:

- A totaliser is a device that combines votes recorded in multiple EVMs before the final count is displayed.
- Instead of revealing results booth by booth, the machine produces an aggregated result from several polling stations. This makes it difficult to identify voting patterns in any particular booth.

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- Neither the Representation of the People Act nor the Conduct of Election Rules, 1961, or any allied enactment contain any provision recognising, regulating or governing the use of a totaliser in counting votes.
- A totaliser connects a cluster of 14 control units of EVMs used at 14 polling stations via a cable, which in turn would provide a consolidated result for each candidate in that group of EVMs.

Quick Bites:

- The All India Institute of Ayurveda (AIIA), New Delhi, an autonomous institute under the Ministry of Ayush, has launched 'AyurVarta', a special digital dialogue series aimed at taking authentic knowledge, scientific perspectives and contemporary relevance of Ayurveda to wider audiences in India and abroad. The initiative has been launched ahead of Ayurveda Day, which will be observed on 23 September.
- In a historic milestone for the Indian Air Force Air Vice Marshal Shakti Sharma became the first woman officer (non-medical) in the Indian Defence Forces to attain the rank of Air Vice Marshal (or equivalent). On 01 September 2026, she assumed the appointment of Assistant Chief of the Air Staff (Education) at Air Headquarters.
- Dr Jitendra Singh, Hon'ble Union Minister of State (Independent Charge) for Earth Sciences, has officially launched the 5th edition of 'Swachh Sagar, Surakshit Sagar 2026: SSSS v.5.0'. Building on its success over the last four years, the initiative has transformed into a powerful grassroots movement inspired by the Swachh Bharat vision. Spearheaded by the Ministry of Earth Sciences, the campaign unites citizens, students, youth, coastal communities, and volunteer organisations/NGOs nationwide as part of Jan Bhagidhari to protect oceans and keep beaches pristine.
- The Attunli Hydroelectric Project is a 680 MW run-of-river hydropower project of SJVN Ltd. in Dibang Valley, Arunachal Pradesh, recently recommended for environmental clearance by the EAC; it involves an 85-metre concrete gravity dam across the Tangon (Talo) River, a 7.955 km head-race tunnel, and an underground powerhouse with four 170 MW Francis turbines, and is expected to generate about 2,728 million units of electricity annually.

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- Tetragonula nagalandensis is a newly discovered stingless honey bee species from the Medziphema region of Nagaland, named in honour of the state. Its discovery raises the number of known stingless bee species in India to 19, with its unique reproductive anatomy serving as a key feature for identification.
- UN nuclear watchdog inspectors found that "former Syrian authorities failed to report nuclear material, facilities and activities as required under safeguards agreements", a confidential report said. Inspectors of IAEA confirmed reactor infrastructure at Deir el-Zour and verified about "73 tonnes of natural uranium"
- Israel on Monday signed a $3.5 billion arms deal with Greece, one of Israel's biggest ever sales at a time when it faces criticism in much of the world. The agreement will be part of the new "Achilles Shield" aerial defence system for Greece. The Achilles Shield will include Israeli-made anti-missile, anti-aircraft and anti-drone systems.

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03-09-2026

1. Tenzing Norgay National Adventure Awards (TNNAA):

Context: The Ministry of Youth Affairs and Sports, Government of India, has announced the Tenzing Norgay National Adventure Awards (TNNAA) for the year 2024. The Government has approved four awardees for the Tenzing Norgay National Adventure Award (TNNAA) 2024: Ms. Baljeet Kaur and Shri Skalzang Rigzin under Land Adventure, Shri Rimo Saha under Water Adventure, and Shri Shiv Prasad Chamoli for Lifetime Achievement, recognising their outstanding contributions and achievements in adventure activities.

About Tenzing Norgay National Adventure Awards (TNNAA):

- It is India's highest national honour for outstanding achievements in the field of adventure
- The awards recognise outstanding achievements by individuals in the field of adventure and seek to promote a spirit of endurance, risk-taking, teamwork and quick and effective decision-making in challenging situations.
- The awards cover four categories — Land Adventure, Water Adventure, Air Adventure and Lifetime Achievement.
- Each awardee will receive a statuette, a certificate and award money of Rs. 15 lakh.
- The awards seek to promote among the youth a spirit of courage, endurance, discipline, risk-taking and cooperative teamwork, while encouraging the ability to respond with speed and effectiveness in challenging situations.
- The award enjoys a status equivalent to the Arjuna Awards and is presented by the Government of India along with the National Sports Awards.

2. Lohit river:

Context: One person died, six were injured, and three others remained missing after a Delhi-registered vehicle carrying 10 people fell into the Lohit River recently

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About Lohit river:

- **Origin:** Rises in eastern Tibet in the Zayal Chu range and enters India through Anjaw district, Arunachal Pradesh.
- **Course:** Flows for about 200 km through Arunachal Pradesh before joining the Brahmaputra in Assam, passing through deep valleys and the Mishmi Hills.
- **Characteristics:** A fast, fierce and unpredictable Himalayan river with steep gradients, narrow gorges and rapids.
- **"River of Blood":** Its reddish colour during high flows is associated with iron-rich lateritic soils of the Lohit Valley and Mishmi Hills.
- **Tributaries:** Major right-bank tributaries include Dau, Dalai and Tidding, while Lang is a major left-bank tributary.
- **Importance:** Important for drinking water, agriculture and hydropower; Parshuram Kund, an important Hindu pilgrimage site, lies on its lower reaches.

3. Male Mahadeshwara Hills Wildlife Sanctuary

Context: Recent official data from the Forest Department shows that Male Mahadeshwara Hills Wildlife Sanctuary accounted for nearly half of the poaching cases and illegal arms cases registered in the last 16 years

About Male Mahadeshwara Hills Wildlife Sanctuary:

- **Location:** Situated in Chamarajanagara district, Karnataka, at the meeting zone of the Western and Eastern Ghats.
- **Status:** Declared a Wildlife Sanctuary in 2013.
- **Connectivity:** Contiguous with BRT Tiger Reserve, Sathyamangalam Tiger Reserve and Cauvery Wildlife Sanctuary, forming an important wildlife corridor.
- **Geography:** Bounded by the Kaveri River to the northeast and Palar River to the south; famous for the Male Mahadeshwara Temple dedicated to Lord Shiva.

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- **Vegetation:** Predominantly dry deciduous forest, with moist deciduous, semi-evergreen, evergreen and shola forests at different elevations.
- **Biodiversity:** Supports elephants, tigers, leopards, Indian gaur, wild dogs, sambar, spotted deer, foxes and diverse bird species; important flora includes Anogeissus latifolia, Boswellia serrata, Hardwickia binata and Chloroxylon swietenia.

4. Typhon missile systems:

Context: Russia recently warned Japan over the deployment of U.S. Typhon missile systems, calling the move unacceptable and a threat to Russian security.

About Typhon missile systems:

- **Type:** U.S. surface-to-surface missile system developed by Lockheed Martin, with a modular design capable of firing different missiles.
- **Missiles:** Can launch SM-6 (range beyond 320 km) and Tomahawk cruise missiles (deep-strike range up to ~1,500 km).
- **Mobility:** Containerized and road-mobile, allowing rapid deployment and dispersal across allied territories.
- **Capabilities:** Designed for both precision land strikes and sea-denial missions, targeting land and maritime threats.
- **Battery structure:** Each battery has 4 trailer-mounted launchers, each carrying 4 vertical launch cells — 16 missiles per battery.
- **Support systems:** Includes a mobile command post and generator vehicles for sensors, communications and power, enhancing survivability in contested environments.

5. Myristica Swamps:

Context: A recent study highlighted that the Myristica Swamps are on the cusp of extinction.

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About Myristica Swamps:

- **Nature:** Rare freshwater swamp forests dominated by evergreen trees of the Myristicaceae family; Myristica species are considered living fossils due to their primitive characteristics.
- **Distinctive feature:** Trees have large protruding roots adapted to permanently waterlogged and inundated soils.
- **Distribution in India:** Mainly found in the Western Ghats, with smaller occurrences in the Andaman & Nicobar Islands and Meghalaya.
- **Habitat:** Develop in tropical plains on fertile, alluvial, waterlogged soils with year-round freshwater availability.
- **Rarity:** Freshwater swamp forests occupy less than 2.1% of Earth's surface; Myristica swamps have an ancient genetic lineage dating back about 500 million years.
- **Ecological role:** Help in flood regulation, groundwater recharge and maintaining perennial freshwater flows.
- **Biodiversity & climate:** Have high carbon-sequestration capacity and provide habitat for diverse vertebrate and invertebrate fauna.

6. Exclusive Economic Zones (EEZ):

Context: The issue is the conflict between Tamil Nadu's ban on purse seine fishing within its territorial waters (up to 12 nautical miles) and fishermen's right to carry these nets through Tamil Nadu waters to fish in the EEZ beyond 12 nautical miles. The Supreme Court upheld both the Tamil Nadu Marine Fishing Regulation Rules, 2020 and the Central EEZ Rules, 2025, and directed Tamil Nadu to create a specified navigation corridor for vessels carrying purse seine nets to the EEZ, balancing State regulation and conservation concerns with fishermen's fishing rights under the principle of cooperative federalism.

About Exclusive Economic Zones (EEZ): Maritime Zone	**Rights / Jurisdiction**
Territorial Sea	• Coastal states have sovereignty and jurisdiction over the sea, seabed, subsoil and airspace.

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	• Subject to the right of innocent passage of foreign vessels.
Contiguous Zone	• Coastal state can prevent and punish violations of customs, fiscal, immigration and sanitary laws • Jurisdiction extends over the sea surface and seabed, but not airspace.
Exclusive Economic Zone (EEZ)	• Coastal states have sovereign rights to explore, exploit, conserve and manage living and non-living natural resources. • Includes rights over energy production from water, currents and wind.
High Seas	• Beyond national jurisdiction and open to all states.• Activities must be for peaceful purposes, including navigation, marine scientific research and undersea exploration. • **Note:** Under UNCLOS, the term "common heritage of mankind" properly applies to the Area (seabed beyond national jurisdiction), not the high seas.

7. Pichavaram mangroves:

Context: A recent study of the Pichavaram mangrove ecosystem in Tamil Nadu estimated its total economic value (TEV) at ₹2,485.38 crore, with a per-hectare value of ₹1.83 crore, reflecting the ecological, economic, and social benefits it provides.

About Pichavaram mangroves:

- **Location:** Located near Chidambaram, Tamil Nadu, along the Vellar–Coleroon estuarine complex.
- **Type:** One of the largest mangrove forests in India, consisting of numerous small islands separated by interconnected waterways.
- **Hydrology:** Receives both freshwater and saline water, creating a brackish-water ecosystem.
- **Major Species:** Dominated by Avicennia and Rhizophora species, along with other mangrove-associated vegetation.
- **Biodiversity:** Supports diverse fish, prawns, crabs, molluscs and migratory/resident birds.

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- **Ecological Role:** Acts as a nursery ground for marine and estuarine organisms and supports coastal fisheries.
- **Disaster Protection:** Mangroves help protect the coastline from cyclones, storm surges, coastal erosion and tsunamis.
- **Carbon Sink:** Mangrove ecosystems are highly efficient in carbon sequestration and storage, contributing to climate regulation.
- **Tourism & Conservation:** Pichavaram is an important eco-tourism destination, particularly known for boat rides through its mangrove waterways; conservation is important because mangroves are vulnerable to changes in freshwater flow, pollution and human pressure.

8. Streptococcus pneumoniae:

Context: Streptococcus pneumoniae has 100+ serotypes and normally colonises the nose and throat but can cause pneumonia, meningitis and sepsis when immunity weakens. Pneumococcal vaccines use serotype-specific capsular polysaccharides for protection, but current vaccines cover only a subset of serotypes; expanding coverage requires adding more polysaccharides, making a single vaccine covering all serotypes technically difficult and expensive.

More details:

- **Streptococcus pneumoniae:** A major bacterial cause of pneumonia, meningitis and sepsis, associated with around 7.4 lakh child deaths globally in 2019.
- **Serotypes:** It has 100+ serotypes, and existing vaccines protect against only a limited number of them.
- **Vaccine Limitation:** PPV23 and Pneumococcal Conjugate Vaccines (PCVs) target selected serotypes, allowing non-covered strains to persist and spread.
- **Pneumonia:** An acute respiratory infection affecting the lungs, caused by bacteria, viruses or fungi; S. pneumoniae is an important bacterial cause.
- **Vulnerable Groups:** Newborns, undernourished children and immunocompromised people, including those with HIV, are at greater risk of pneumonia.

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- **Transmission & Prevention:** Pneumonia-causing pathogens can spread through coughing, sneezing, bodily fluids and contaminated surfaces; bacterial pneumococcal disease can be prevented through PCV vaccination.
- **Meningitis:** Inflammation of the tissues surrounding the brain and spinal cord, caused by bacteria, viruses, fungi or parasites; young children are particularly vulnerable.
- **India:** Pneumococcal Conjugate Vaccine (PCV) is included in India's Universal Immunisation Programme (UIP) for nationwide protection.

9. Distinguished jurist:

Context: Supreme Court judge Justice Ujjal Bhuyan on Sunday questioned why a constitutional provision allowing a "distinguished jurist" to be appointed as a judge of the Supreme Court has remained unused for more than 76 years. Addressing the 13th convocation of National Law University, Delhi's LL.M. programme, Justice Bhuyan pointed out that Article 124(3) of the Constitution permits the appointment of a person who, in the President's opinion, is a "distinguished jurist" as a Supreme Court judge. However, no legal academic has so far been elevated to the top court under this provision.

About Distinguished jurist:

- **Constitutional Provision:** Article 124(3) provides three routes for appointment as a Supreme Court judge: 5 years as High Court judge, 10 years as High Court advocate, or being a "distinguished jurist" in the President's opinion.
- **No Definition:** The Constitution does not define "distinguished jurist" or prescribe minimum professional experience, potentially allowing eminent legal scholars and academics to be appointed.
- **Constituent Assembly Intent:** The category was introduced to widen the pool and diversify professional backgrounds of Supreme Court judges beyond judges and practising advocates.
- **H.V. Kamath's View:** Kamath argued that persons with outstanding legal and juristic learning need not necessarily be judges or advocates.

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- **Frankfurter Example:** The Assembly cited Justice Felix Frankfurter, a Harvard Law professor for 25 years before joining the U.S. Supreme Court, as an example of an academic jurist becoming a successful judge.
- **High Court Experiment:** The Constitution originally did not allow distinguished jurists to become High Court judges; the 42nd Amendment (1976) temporarily introduced this route under Article 217, but the 44th Amendment (1978) removed it.
- **Never Invoked:** Despite existing since the Constitution's inception, the "distinguished jurist" route has never been used for appointing a Supreme Court judge; appointments have overwhelmingly come from High Court judges, with only 11 advocates directly elevated from the Bar.
- **Collegium & Practical Barrier:** A jurist would still need to be recommended by the Supreme Court Collegium, which may partly explain why the provision remains unused.
- **Academic Experience Debate:** Critics argue legal academics may lack courtroom/procedural experience, while restrictions on full-time law teachers practising as advocates further widen the gap between "law in books" and "law in action."

Quick Bites:

❖ Union Minister for Communications and DoNER, Shri Jyotiraditya M. Scindia, today laid the foundation stone of the country's 7th Postal Training Centre at Shivpuri, Madhya Pradesh marking a significant step towards strengthening the training and capacity-building ecosystem of the Department of Posts

❖ Aero India, Asia's largest air show and one of the world's premier aerospace and defence exhibitions, is all set to return with its 16th edition at Air Force Station, Yelahanka in Bengaluru, Karnataka from February 8 to 12, 2027. Organised by the Department of Defence Production, Ministry of Defence, the event will bring together leading global aerospace and defence companies, policymakers, technology experts, innovators, industry stakeholders and defence forces personnel on a common platform.

❖ The Government of India welcomes the decision of Japan Credit Rating Agency (JCR) to upgrade India's Long-Term Foreign Currency and Local Currency Issuer Ratings by one notch from 'BBB+' to 'A-', while maintaining the Stable Outlook. JCR has also raised India's country ceiling by one notch to 'A'.

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- Raja Mircha (Naga King Chilli/Bhut Jolokia) is a variety of chilli mainly cultivated in Nagaland, scientifically known as Capsicum chinense. It is one of the world's hottest chillies, known for extreme pungency and fruity aroma. It has a conical, wrinkled appearance, thin flesh, and changes from green to bright red on maturity.
- Dipturus dhritiae, or the Arabian skate, is a newly discovered deep-sea skate from the southeastern Arabian Sea, identified by scientists from ZSI, ICAR-CMFRI and international experts. It is a flat, shark-related fish living on the deep ocean floor. Deep-sea skates are vulnerable to overfishing because they grow and reproduce slowly, produce few offspring, and recover slowly from population decline.
- Recently, Karnataka Food Safety and Drug Administration officials cancelled a 'peptide party' in Bengaluru, highlighting concerns over the recreational or unregulated use of peptide-based substances. Peptides are short chains of 2–50 amino acids linked by peptide bonds and act as important biological molecules. The human body naturally produces peptides such as insulin (regulates blood glucose), endorphins (help relieve pain and stress), and growth hormone-releasing hormone (GHRH) (stimulates growth hormone release).
- The Indian Institute of Technology Madras (IIT Madras) in Chennai and the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (UNESCO MGIEP) signed a cooperation agreement on 1 September 2026 to develop next-generation AI and immersive learning technologies. The partnership combines UNESCO MGIEP's work in Social and Emotional Learning (SEL) with IIT Madras expertise in artificial intelligence, Extended Reality (XR), and game design.
- The 366-metre container vessel MSC Beryl departed from Vizhinjam International Seaport in Kerala on 1 September 2026 for Valencia, Spain. The vessel carried Vizhinjam's first export consignment of eight containers, including packaged food products from Thiruvananthapuram and seafood from Kochi. Vizhinjam International Seaport is a deep-water transhipment port near Thiruvananthapuram in Kerala. The port is developed by Adani Ports and Special Economic Zone Ltd. and is designed to handle large container vessels on the Arabian Sea coast.
- Gollalagudi Temple, also called Gollala Gudi, in Palampet village of Mulugu district, Telangana, was declared a monument of national importance through a gazette notification issued by the Union Ministry of

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Culture and Tourism on 1 September 2026. The declaration increased the number of Archaeological Survey of India protected monuments in Telangana to 10.

- The kākāpō, a flightless nocturnal parrot endemic to New Zealand, reached 325 birds after 90 fledged chicks were added to the population tally on 1 September 2026. The species is the world's heaviest parrot and had crossed 300 birds for the first time in about 75 years by 31 August 2026.
- The UNEP report Limiting Overshoot warns that breaching the 1.5°C Paris Agreement limit is now unavoidable and could cause irreversible ecological losses. It proposes an "overshoot, peak and decline" pathway—keeping the temperature overshoot as low and short as possible, then bringing warming back below 1.5°C by 2100; even full implementation of current national climate plans and net-zero targets could result in 1.8°C peak warming, while current policies could lead to about 2.6°C warming by 2100.
- The International Cricket Council (ICC) announced on Wednesday that the inaugural women's Champions Trophy 2027 will be held in Mumbai and Vadodara from Feb. 14 to 28.
- The Shri Ram Janmabhoomi Teerth Kshetra Trust on Wednesday appointed Air Vice-Marshal Jitendra Mishra (retd) as its first chief executive officer. The appointment came at a time when the the Trust is strengthening its administrative structure amid allegations of theft of donations at the Ram Temple in Ayodhya.
- The Central Bureau of Investigation (CBI) has organised a two-day case coordination meeting between India and Thailand on 'Live Animal Trafficking' which commenced on Wednesday. The CBI is co-hosting the meeting in coordination with the Interpol Environmental Security Sub- Directorate (ENS). "The smuggling of exotic live animals and birds for pet trade is a growing trend in Asia.

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04-09-2026

1. BIO-NIVESH:

Context: Union Minister for S&T Dr. Jitendra Singh holds joint Round table with StartUps and Investors; Launches BIO-NIVESH to Catalyse Investment and Scale-Up of Biotechnology Innovations in India

About BIO-NIVESH:

- BIO-NIVESH is a strategic platform launched to strengthen engagement between biotechnology innovators and investors.
- It aims to catalyse private capital into promising biotech innovations for scale-up and commercialisation.
- It seeks to bridge the gap between research, entrepreneurship, industry and markets.
- It brings together startups, investors, industry and Government to create an innovation–investment ecosystem.
- It promotes the idea that innovation needs investment, while sustainable investment depends on continued innovation.
- It is implemented with the involvement of BIRAC and reflects a broader "whole of government plus whole of nation" approach to biotechnology growth.

2. Khagantak-243:

Context: Recently, the Indian Air Force conducted a successful drop trial of the indigenously designed and developed Long Range Glide Bomb (LRGB), Khagantak-243.

About Khagantak-243:

- Khagantak-243 is a 300-kg-class, airborne, long-range stand-off precision-guided glide bomb.
- **Developed by:** Bharat Electronics Limited (BEL) and JSR Dynamics.
- It is launched from a fighter aircraft and glides towards the target after release.
- **Range:** About 144–180 km when released from 12 km altitude at Mach 0.8.

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- It has a cylindrical body, swivel-type mid-body glide wings and five aft control surfaces for navigation.
- **Significance:** Enables aircraft to strike targets from stand-off distances, reducing the need to fly directly over targets and helping remain outside the range of some air-defence systems.

3. Uparkot Fort:

Context: During the festival season, Junagadh's Uparkot Fort has remained closed to visitors for the third consecutive day after a leopard was spotted inside the historic premises.

About Uparkot Fort:

- Uparkot Fort is an ancient fort in Junagadh, Gujarat, strategically located at the foothills of Girnar Hill.
- It is traditionally believed to have been built in 319 BCE by Mauryan emperor Chandragupta, though it was expanded several times; it was earlier known as Revath Nagri.
- The fort has been inhabited for over 2,000 years and is said to have faced 16 sieges, including a legendary 12-year siege.
- It covers about 70 acres, with fort walls rising to over 20 m in places and a moat reportedly about 300 feet deep.
- Its major attractions include 2nd-century BCE Buddhist caves, containing carvings and inscriptions.
- The complex also contains the 15th-century Jama Masjid, Nuri Shah's tomb, and several Hindu and Jain temples.
- Important water structures include the Adi Chadi/Adi Kavi Vav and Navghan Kuvo, along with the Nawabi Lake.
- A notable feature is a 15+ ft cannon, reportedly manufactured in Egypt in 1531; the fort also has a Torana associated with Jain, Hindu and Buddhist ceremonies.

4. El Nino:

Context: The El Nino weather phenomenon is set to intensify further into 2027 and could be the strongest ever, raising risks of extreme weather into next year, the World Meteorological Organisation said on Thursday. The UN weather agency said its forecasts showed a near 100% likelihood that El Nino would

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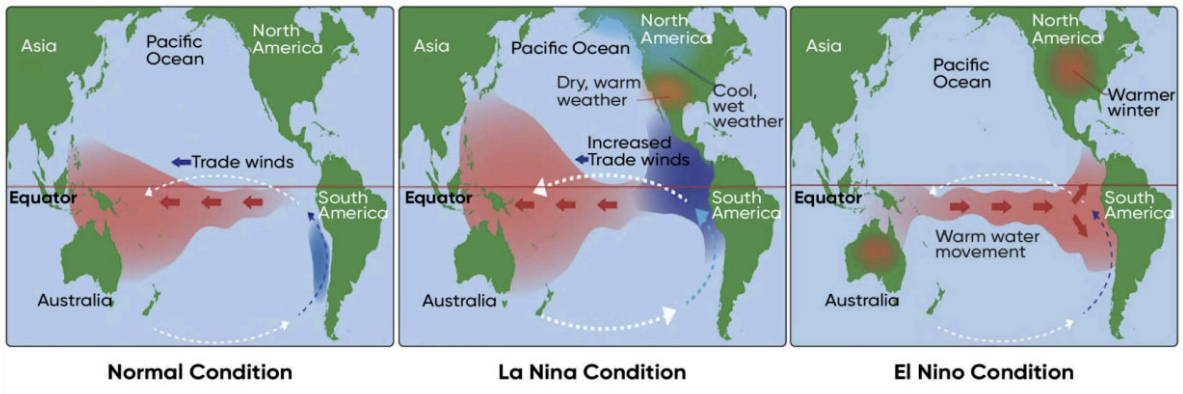
persist through February 2027, fuelled by exceptionally warm Pacific Ocean temperatures. This is the first time it has expressed such a degree of certainty, the WMO said.

About El Nino:



Normal Condition | La Nina Condition | El Nino Condition

El Niño (Warm Phase)	La Niña (Cold Phase)
Warm waters shift eastward toward central & eastern Pacific	Cooler-than-normal waters spread across central & eastern Pacific
Weakening of trade winds	Stronger-than-normal trade winds
Reduced or reversed trade winds	Enhanced east-to-west water movement
Increased rainfall in Peru & South America; drought in Australia/Indonesia	Increased rainfall in Australia/Indonesia; drier conditions in western Americas
Warm phase of ENSO cycle	Cold phase of ENSO cycle

5. Earth observation satellite (EOS-05):

Context: ISRO has slated the launch of EOS-05 (formerly GISAT-1A) aboard the GSLV-F17 rocket from Sriharikota. The mission serves as the operational replacement for the lost GISAT-1 mission to place a continuous geo-imaging satellite over the Indian subcontinent.

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About Earth observation satellite (EOS-05):

- **Satellite:** OS-05 (formerly GISAT-1A) is an ISRO geo-imaging satellite based on the I-2K platform, designed for near-real-time monitoring of India, surrounding oceans and border areas.
- **Launch:** It is developed by ISRO and is planned for launch using GSLV-F17 (GSLV Mk II) from SDSC-SHAR, Sriharikota.
- **Orbit:** Placed in Geosynchronous Orbit (~35,786 km), enabling continuous or frequent observation and avoiding the long revisit gaps associated with LEO satellites.
- **Imaging Capability:** Uses a 700-mm Ritchey–Chrétien telescope with about 42-m spatial resolution in the visible and near-infrared bands.
- **Hyperspectral Sensors:** Carries HyS-VNIR (158 bands), HyS-SWIR (256 bands) and MX-LWIR, enabling detailed monitoring of vegetation, soil, atmospheric aerosols and thermal features.
- **Rapid Monitoring:** Can revisit critical locations every 5–10 minutes and scan the Indian landmass in about 30 minutes, supporting rapid disaster monitoring.
- **Strategic Significance:** Acts as an "Eye in the Sky" for monitoring the LAC, LoC and Indian Ocean, while supporting early warning and response to cyclones, floods, forest fires and Himalayan glacial events.

Quick Bites:

- The National Institute of Homoeopathy (NIH), Kolkata today celebrated its Golden Jubilee, marking 50 years of dedicated service in homoeopathic education, research and patient care. As part of the celebrations, a state-of-the-art Modular Operation Theatre and a Centre of Excellence were inaugurated, significantly strengthening the Institute's clinical, academic and research infrastructure.
- On 3 September 2026, Defence Minister Rajnath Singh released 'RAKSHA', a 10-year strategic framework for India's defence diplomacy and global defence partnerships. It focuses on strategic partnerships, capacity building through exercises and training, promoting indigenous defence exports under Make in India, and strengthening India's role as a Net Security Provider and First Responder in the Indian Ocean Region.
- The Supreme Court recently stressed cooperative federalism between the Union and State Governments for effective implementation of regulations governing purse seine fishing in India's EEZ and territorial waters.

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A purse seine is a large wall-like net used to encircle dense schools of pelagic (midwater) fish, after which the bottom of the net is tightened using a purse line, trapping the fish inside.

- The Ponnaniyar Dam is located in the Kadavur hills of Karur district, Tamil Nadu, near Pooncholai village. Built in 1976 between the Perumalmalai and Semmalai mountains across the Ponnaniyar River, a tributary of the Kaveri, it is a 59-m-high, 310-m-long concrete gravity dam with a storage capacity of 120 million cubic feet (mcft). Its main purpose is irrigation, and a proposal to divert surplus Cauvery water from Mayanur Barrage to the dam is aimed at benefiting farmers in the region.
- India will host the Hyundai World Archery Para Series 2026 for the first time at the Sabarmati Riverfront in Ahmedabad, Gujarat, from September 5 to September 9, 2026
- Leaders of the 10 member states of the Shanghai Cooperation Organisation (SCO)—including India, Russia, and China—concluded the 26th Council of Heads of State summit in Bishkek, Kyrgyzstan, by signing the joint Bishkek Declaration. The Bishkek Declaration is the consensus-based joint communique and strategic outcome document adopted by the heads of state of the Shanghai Cooperation Organisation at their 26th annual summit. It sets the institutional roadmap, security priorities, and economic coordination framework for the Eurasian bloc for the next 25 years.
- The Public Insurance Registry (PIR) is a proposed Digital Public Infrastructure (DPI) by IRDAI to create a population-scale, interoperable and non-exclusionary common information-exchange layer for the insurance sector. It aims to address information gaps by enabling authorised participants to discover, verify and share insurance-related data securely, without creating a single centralised data warehouse. The initiative is proposed under the Sabka Bima Sabki Raksha (Amendment of Insurance Laws) Act, 2025, with the objective of improving transparency, data accessibility and efficiency in the insurance ecosystem.

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05-09-2026

1. Geothermal Energy:

Context: The ONGC Energy Centre commissioned the country's first two geothermal wells in Puga Valley, Ladakh. At a height of over 14,000 feet above sea level, Puga Valley is among India's most promising geothermal sites, known for its hot springs and underground heat reserves. The two 1,000-metre-deep wells will support reservoir evaluation. They also pave the way for India's first 1-megawatt demonstration geothermal power project, marking the country's entry into geothermal power generation.

About Geothermal Energy:



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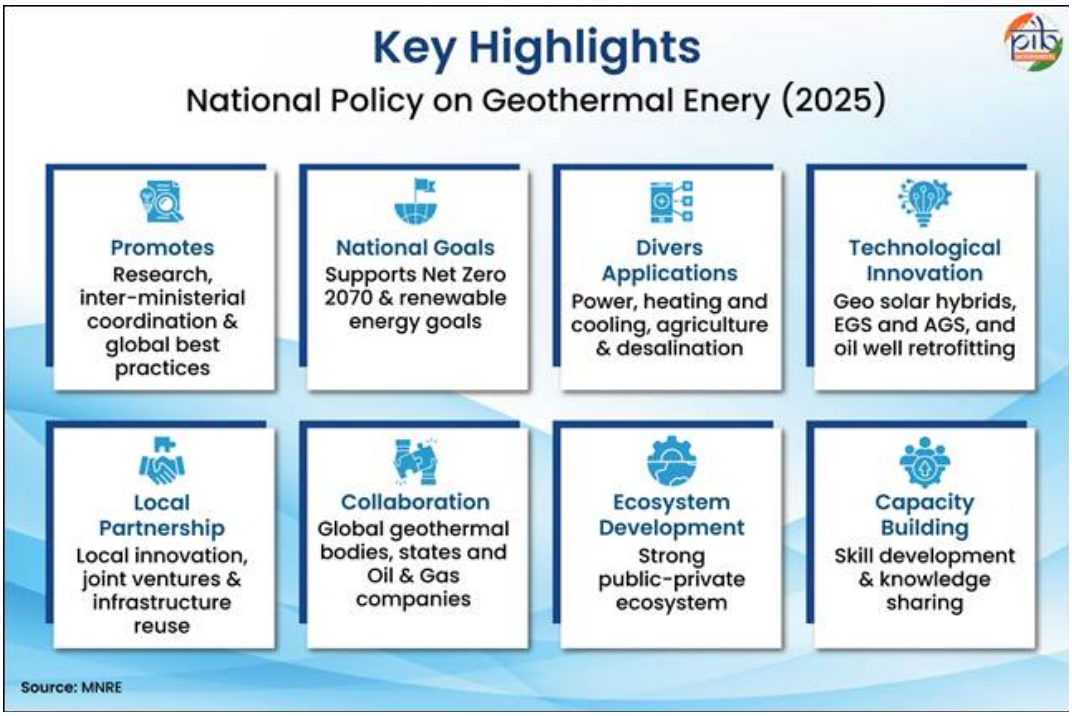
- Geothermal Energy is a steady, low-carbon and weather-independent energy source. It holds a vast untapped resource base to strengthen India's clean energy future and cut reliance on fossil fuels.
- **Power generation:** Deep wells bring hot water/steam to the surface, where steam drives a turbine connected to a generator, using Earth's heat instead of fuel combustion.
- **Sustainable cycle:** After electricity generation, the used water is condensed and reinjected into the underground reservoir, helping replenish the resource.
- **Direct applications:** Geothermal heat is also used directly for district heating, agriculture, aquaculture, and space heating/cooling.
- **Resource base:** GSI has mapped 381 hot springs and identified 10 geothermal provinces across India.



- **Potential:** India has a theoretical geothermal potential of about 10.6 GW, with 42 sites identified as promising for power generation and direct heat applications.
- **Major provinces:** Himalayan, Naga-Lusai, Andaman & Nicobar, SONATA, West Coast, Cambay Graben, Aravalli, Mahanadi, Godavari, and South Indian Cratonic regions.

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2. Osbeckia ulotricha:

Context: Recently, scientists from the Botanical Survey of India have discovered a new flowering plant in the Western Ghats and named it Osbeckia ulotricha.

About Osbeckia ulotricha:

- Osbeckia ulotricha is a newly identified flowering plant belonging to the Melastomataceae family, discovered in the shola grasslands of Agasthyamala Biosphere Reserve.
- It is a woolly-haired endemic species, found at elevations of 1,200–1,500 m in the Western Ghats.
- **Key features:** Leaves clustered at the apex, sub-globose/urn-shaped hypanthium with a neck, and an ovary crowned with true bristles; it flowers and fruits during February–May.
- **Habitat:** Mainly occurs along damp margins of tropical montane wet-temperate forests (sholas) and montane temperate grasslands.
- **Agasthyamala Biosphere Reserve:** Located in the southern Western Ghats, covering parts of Kerala and Tamil Nadu; established in 2001 and included in UNESCO's World Network of Biosphere Reserves in 2016.
- **Vegetation & rivers:** Contains tropical evergreen, semi-evergreen, moist deciduous, montane rainforests and shola-grassland ecosystems. Important rivers originating here include Thamirabarani, Neyyar and Karamana.
- **Protected areas:** Includes Shendurney, Peppara and Neyyar Wildlife Sanctuaries and Kalakkad–Mundanthurai Tiger Reserve, making it an important biodiversity region of the Western Ghats.

3. Reverse vaccinology:

Context: Recently, a team of British scientists have taken an important first step in developing a vaccine against pneumonia by using reverse vaccinology.

About Reverse vaccinology:

- **Definition:** Reverse vaccinology is an emerging vaccine-development approach using genome sequencing, bioinformatics and computational analysis to identify potential vaccine targets.

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- **Target identification:** It analyses pathogen genomes to identify surface-exposed or secreted proteins and predicts potential antigenic epitopes.
- **Origin:** The term was coined by Rino Rappuoli in 2000, who described vaccine design based on whole-genome information.
- **First application:** It was first successfully applied to develop a vaccine against serogroup B Neisseria meningitidis (MenB).
- **Mechanism:** Genome sequencing → in-silico identification of candidate proteins → laboratory production & high-throughput screening → animal testing to assess safety and immune response.
- **Applications:** The approach has also been applied to pathogens such as Bacillus anthracis, Streptococcus pneumoniae and Mycobacterium tuberculosis.

4. Subarnarekha river:

Context: Over 45,000 people in 22 gram panchayats across three blocks of Balasore were affected by floods as the Subarnarekha river breached its banks again recently.

About Subarnarekha river:

- Subarnarekha is an east-flowing river originating near Nagri village, Ranchi district, Jharkhand, at about 600 m elevation, and flowing through Jharkhand, Odisha and West Bengal.
- Its name means “streak of gold”, referring to the traditional presence of gold particles in its riverbed, especially near its source.
- It flows eastward across the Chhotanagpur Plateau, passing Hundru Falls, and travels about 395 km before draining into the Bay of Bengal at Kirtania Port, Odisha.
- **Major tributaries:** Kanchi, Kharkai and Karkari. The basin lies between the Damodar (north) and Brahmani–Baitarani (south).
- **Major dams/reservoirs:** Getalsud Reservoir, Chandil Dam, Galudih Barrage and Icha Dam; the basin is mainly influenced by the Southwest Monsoon (June–October).
- Important places along its course include Ranchi, Jamshedpur, Chaibasa and Kirtania Port.

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5. Falklands Islands:

Context: Argentina and the United Kingdom have renewed a long-running sovereignty dispute over the Falkland Islands, which Argentina calls Las Malvinas. On 3 September 2026, Argentine President Javier Milei announced plans for economic sanctions against foreign firms involved in offshore oil and gas extraction near the islands without Argentine approval.

About Falklands Islands:

- **Location:** An archipelago in the South Atlantic Ocean, off the southernmost part of South America, about 480 km northeast of the southern tip of the continent.
- **Political status:** Also known as the Malvinas Islands, they are an internally self-governing overseas territory of the United Kingdom.
- **Composition:** The archipelago consists of two major islands—East Falkland and West Falkland—and 776 smaller islands, separated by Falkland Sound.
- **Capital:** Stanley, located on East Falkland, is the capital and major settlement.
- **Climate & location:** The islands lie in the Southern and Western Hemispheres and have a cool temperate oceanic climate with relatively few climatic extremes.

6. Variable rate repo (VRR):

Context: The Reserve Bank of India (RBI) on Friday absorbed over ₹6.02 lakh crore from the banking system through two variable rate reverse repo (VRRR) auctions as surplus liquidity remained at a record high. The RBI accepted bids of ₹5,41,975 crore in a three-day VRRR auction against a notified amount of ₹7 lakh crore. In another three-day VRRR auction, against a notified amount of ₹1.5 lakh crore, banks parked ₹60,419 crore with the RBI. The central bank has stepped up liquidity absorption operations as the banking system has been flooded with funds following large inflows through the special FCNR(B) deposit scheme. Currently, liquidity in the banking system is estimated to be in surplus of around ₹10.32 lakh crore as on September 3, according to the RBI's data.

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About Variable rate repo (VRR):

- VRR is a short-term liquidity management tool used by the RBI to inject liquidity into the banking system.
- It operates under the Liquidity Adjustment Facility (LAF) and helps banks meet temporary cash/liquidity shortages.
- **Tenure:** Generally 1–14 days, making it a short-term borrowing instrument.
- **Interest rate:** Unlike fixed repo, the VRR rate is market-determined through an auction based on banks' bids.
- **Auction process:** Banks bid for the required amount and interest rate; RBI allocates funds starting with the highest bids until the notified amount is exhausted.
- **Collateral:** Banks must provide eligible government securities as collateral to obtain funds from RBI.
- **VRR vs Fixed Repo:** VRR rates vary with every auction according to prevailing liquidity demand and supply, whereas the fixed repo rate is predetermined by RBI's MPC.
- **Purpose difference:** VRR is mainly used to fine-tune short-term liquidity, while the fixed repo rate is a key instrument for signalling the overall monetary policy stance.
- **Impact:** VRR primarily influences short-term money-market rates, whereas changes in the fixed repo rate have a broader influence on bank lending rates, borrowing costs and overall credit conditions.

Quick Bites:

❖ Ophiorrhiza assamensis is a newly discovered flowering perennial herb from a moist, shaded habitat near Guwahati, Assam, belonging to the Rubiaceae family (the coffee family) and genus Ophiorrhiza. It has large, ribbed leaves and clusters of small white flowers. The genus is a natural source of camptothecin, a compound important in developing anti-cancer medicines. Since O. assamensis is known only from a highly localised population and its total population is unknown, it is considered vulnerable to habitat loss and classified as Data Deficient under IUCN criteria.

❖ AgriStack is a Digital Public Infrastructure (DPI) for agriculture under the Digital Agriculture Mission, approved in September 2024. It comprises three foundational registries—Farmer Registry, Geo-referenced Village Maps and Crop Sown Registry—maintained by States/UTs. Farmer IDs are digitally linked with

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land records, crops, livestock, demographic details and government schemes, enabling targeted delivery of agricultural services and benefits.

- A team of Indian researchers has produced the first comprehensive molecular and functional profile of the venom gland of Stegodyphus sarasinorum, a colonial spider species found across the Indian subcontinent, to identify numerous proteins and small molecules that could serve as promising leads for future drug discovery. S. sarasinorum lives in permanent colonies, constructs communal silk nests and captures prey cooperatively. It is among a small number of permanently social spider species known worldwide, thereby making it an important model for studying spider behaviour and venom biology.
- A major offensive by Yemen's Houthis to seize control of the gateway to the Red Sea has left more than 120 people dead, sources said on Friday, the country's deadliest clashes in years. The Houthis, officially known as Ansar Allah, are a Zaydi Shia political and military movement that controls large parts of Yemen, including the capital city of Sanaa.
- Belgian Prime Minister Bart De Wever on Friday pitched the Port of Antwerp-Bruges as a gateway for Indian exports to Europe. He is in Mumbai for a high-level dialogue on the India-EU Free Trade Agreement. The Port of Antwerp-Bruges will be a key logistics link between India and Europe creating opportunities in diamonds, pharmaceuticals, food processing, maritime services, green hydrogen and infrastructure.

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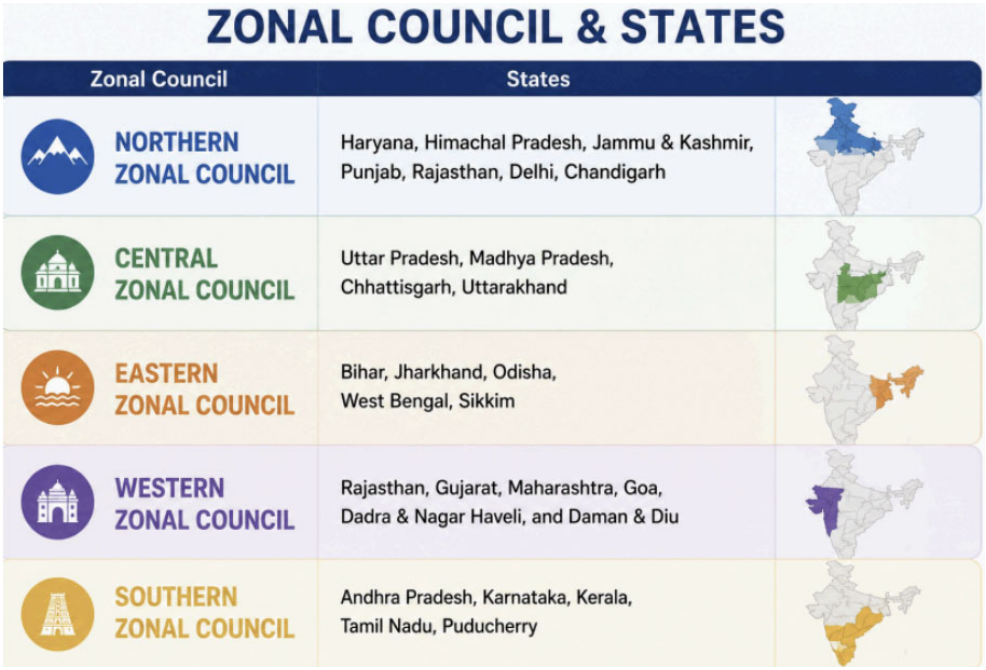
06-09-2026

1. Zonal councils:

Context: Union Home Minister and Minister of Cooperation Shri Amit Shah will chair the 28th meeting of the Western Zonal Council in Panaji, the capital of Goa, on Monday, September 7, 2026.

About Zonal councils:



- Zonal Councils are statutory bodies established under the States Reorganisation Act, 1956, to promote cooperative federalism and inter-State coordination.
- The concept of Zonal Councils was proposed by Jawaharlal Nehru in 1956 during discussions on the Fazal Ali Commission Report.
- Five Zonal Councils were created under Sections 15–22 of the States Reorganisation Act, 1956.
- The North Eastern region has a separate body called the North Eastern Council, established under the North Eastern Council Act, 1972.

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- The Union Home Minister serves as the Chairman of all five Zonal Councils and is also the ex-officio Chairman of the North Eastern Council.
- The Vice-Chairman is the Chief Minister of a member state, selected by annual rotation.
- Members include Chief Ministers, Lieutenant Governors, Administrators, and two ministers nominated by the Governor from each member state.
- Advisors include nominees from NITI Aayog, along with Chief Secretaries and Development Commissioners of member states.
- Each Zonal Council has a Permanent Committee of Chief Secretaries to examine issues before placing unresolved matters before the full Council.
- Zonal Councils provide a platform for dialogue and coordination between states and the Centre on common issues.
- Though advisory in nature, Zonal Councils have become important instruments of cooperative federalism, with 61 meetings held in the last 11 years.

2. Alexander disease:

Context: Ionis Pharmaceuticals recently said it would price its newly approved therapy to treat Alexander disease at $285,000 per dose, a day after the U.S. FDA cleared the injectable drug, making it the first approved treatment for the genetic disorder in adults and children.

About Alexander disease:

- Alexander disease is a rare genetic disorder that progressively damages the central nervous system.
- It is a leukodystrophy, a group of disorders in which the white matter and myelin sheath of the brain and spinal cord are damaged.
- The disease is characterised by deterioration of myelin and accumulation of abnormal protein aggregates called Rosenthal fibres.
- Most cases are caused by mutations in the GFAP (glial fibrillary acidic protein) gene, leading to abnormal accumulation of GFAP protein and damage to brain white matter.

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- In most patients, the mutation is de novo (new/random) rather than inherited from parents, though rare inherited cases occur.
- Infantile form is the most common and usually begins before age 2, causing megalencephaly, seizures, spasticity, developmental delay and intellectual disability.
- Juvenile and adult forms may cause speech difficulties, swallowing problems, seizures and ataxia (poor coordination).
- A rare neonatal form can cause severe developmental impairment, hydrocephalus and seizures within the first month of life.
- There is no complete cure, but the U.S. FDA has approved zilganersen (Zanvastro) as a disease-modifying therapy targeting the underlying abnormal protein buildup.

3. Agentic AI:

Context: Recently, the National Institute of Electronics and Information Technology (NIELIT) and Intel India have launched two Agentic AI skilling programmes.

More details:

- **Launched by:** National Institute of Electronics and Information Technology (NIELIT), under MeitY, in collaboration with Intel India.
- **Aim:** To expand access to industry-aligned Agentic AI skills and build a future-ready AI talent ecosystem in India.
- **Agentic AI:** An advanced form of AI capable of autonomous, goal-oriented decision-making and action with minimal human intervention.
- **Key difference:** Unlike traditional AI that mainly responds to commands or analyses data, Agentic AI can set goals, plan tasks, execute them and adapt based on outcomes.
- **Agentic AI for Everyone:** Introduces learners to AI agents, workflow automation and multi-agent systems, using mainly no-code platforms.
- **Engineering Agentic AI Systems:** Focuses on designing, building and deploying scalable agentic systems using no-code/low-code platforms and coding frameworks.

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- **Key components:** Perception → Reasoning → Planning → Action → Reflection, enabling an agent to understand its environment, formulate plans, act and learn from results.
- **Applications/benefits:** Can improve productivity, business transformation, intelligent decision-making and automation across sectors.
- **Significance:** The programme strengthens India's AI skilling ecosystem by providing practical exposure to the development and governance of production-ready AI agents.

4. Rangpur-Sivasagar Historical Ensemble:

Context: The Rangpur-Sivasagar Historical Ensemble in Assam has been added to UNESCO's World Heritage Tentative List. India's Permanent Mission to UNESCO submitted the nomination dossier on 19 June 2026 under UNESCO cultural criteria (iii) and (iv).

About Rangpur-Sivasagar Historical Ensemble:

- **Location & significance:** Located in Sivasagar district, Assam, the ensemble represents the urban and cultural landscape of the Ahom dynasty, which ruled the Upper Brahmaputra Valley for nearly 600 years.
- **Ahom origin:** The Tai-Ahoms, led by Siu-Ka-Pha, entered Assam from present-day Myanmar in 1228 CE and established their first capital at Charaideo.
- **Rangpur:** Established as a planned Ahom capital by Swargadeo Rudra Singha in the early 18th century; it represents an important example of pre-modern planned urbanism.
- **Architecture:** Ahom architecture includes religious structures (temples) and secular structures (palaces, forts, tanks, pavilions, magazine houses and bridges). From the 17th century, brick and stone increasingly replaced bamboo and wood.
- **Ahom temple architecture:** Typical Dol temples contain a garbhagriha and mukhamandapa, often on an octagonal plinth, with a sikhara combined with a bulbous polygonal dome. Temple decoration includes Hindu deities, floral motifs, epic scenes and hunting scenes.
- **Major temple groups:** The three important temple groups are Joysagar, Gaurisagar and Sivasagar. The Sivasagar group includes the Sivadol, Devidol and Visnudol; the Sivadol is about 32 m high and is one of India's tallest Shiva temples.

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- **Tanks (pukhuris/sagars):** Large water reservoirs were central to Ahom water management, serving utilitarian, religious and commemorative purposes. The Ahoms excavated 300+ ponds and tanks in Sivasagar district alone.
- **Three major tanks:** ➢ Joysagar – built by Rudra Singha in memory of his mother Queen Jayamati.
  ➢ Gaurisagar – associated with Queen Phulesvari Devi.
  ➢ Sivasagar – built by Queen Ambika and gave its name to the present town.
- **Indigenous hydraulic engineering:** Large tanks were surrounded by embankments and yamuna (moats), which helped regulate water levels, divert excess rainwater, prevent erosion and strengthen the tank structures.
- **Important royal structures:** Talatal Ghar (Kareng Ghar) was a royal palace/military complex; Rang Ghar was a royal sports and entertainment pavilion and is regarded as one of Asia's oldest amphitheatres. Pohugarh was an enclosed animal area, often described as Asia's first natural zoo.
- **Bridges & infrastructure:** The Namdang Stone Bridge, built in 1703, is a notable Ahom-era stone bridge using a monolithic slab and gravity-locking technique. The Dikhow Steel Bridge represents later British-period engineering.
- **Urban planning & connectivity:** The ensemble had a graded road network of boralis (arterial/primary roads) and alis (secondary roads/pathways) connecting palaces, temples, tanks and residential areas, while adapting to the region's rivers, wetlands and terrain.

5. Medog mega dam project:

Context: Fresh concerns triggered by the devastating glacial collapse along the Nepal-China border are unlikely to sway Beijing's plans to go ahead with the construction of a mega dam on the lower reaches of the Yarlung Zangbo, or the Brahmaputra river, in a seismically active region in Tibet near the border with India.

About Medog mega dam project:

- **Scale and Capacity:** Once completed, it will surpass the Three Gorges Dam as the world's largest, potentially generating three times more energy.

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- **Location:** Situated at the Great Bend of the Yarlung Tsangpo River in Tibet, near the Arunachal Pradesh border.
- **Project design:** Marketed as a run-of-the river project, it will feature five cascade hydropower plants, reservoir-like structures, diverting up to half of the river's flow.
- Disruption in Brahmaputra's water flow threatens agriculture, food security, and hydro projects in Northeast India.
- India, China, and Bangladesh face intense competition over dams and diversions, impacting regional stability.
- Disruption of sediment flow endangers the Ganga-Brahmaputra delta and threatens 218 fish species, including Hilsa & Mahseer, risking 2M livelihoods.
- Project lies in Seismic Zone V; prone to earthquakes & landslides

6. Indian Standard Time (IST):

Context: On August 27, the Centre notified the Legal Metrology (Indian Standard Time) Rules, 2026, making the Indian Standard Time (IST) the single reference for legal, administrative, commercial, and other official purposes across the country.

About Indian Standard Time (IST):

- IST is India's official standard time, observed throughout the country, with a time offset of UTC +5:30.
- IST is based on the 82.5° E longitude, which passes near Mirzapur, Uttar Pradesh, and serves as India's Standard Meridian.
- The 82.5° E longitude gives India a time difference of exactly 5 hours 30 minutes ahead of Greenwich Mean Time (GMT).
- India does not normally observe Daylight Saving Time (DST), though it was temporarily used during the 1962, 1965 and 1971 wars.
- In military and aviation terminology, IST is designated by the letter "E" (Echo).
- Before a unified time system, Indian towns followed their own local times; the growth of railways and telegraph systems in the 19th century created the need for standardisation.

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- In 1884, the International Meridian Conference proposed two time zones for India—Calcutta Time (90° E) and Bombay Time (75° E).
- By the late 1880s, Madras Time became widely used as an intermediate "Railway Time", while Port Blair Mean Time was also established for the Andaman and Nicobar Islands.
- British India officially adopted a single standard time in 1905, choosing 82.5° E as the central meridian; today, the National Physical Laboratory (NPL), New Delhi maintains India's official timekeeping system.

7. Striped hyenas:

Context: According to the non-profit Wildlife SOS, hyenas are the mounts of witches in the folklore of certain cultures, and these beliefs hamper efforts to conserve the striped hyena. Despite India's hyenas enjoying the highest level of legal protection under the Wildlife (Protection) Act 1972, there is no proper unified action plan to conserve them. There are only a few fragmented regional initiatives.

About Striped hyenas:

- **Family:** Striped Hyena (Hyaena hyaena) is one of the four species of Hyaenidae; the others are Spotted Hyena, Brown Hyena and Aardwolf.
- **Habitat & Distribution:** It inhabits arid and semi-arid savannas, grasslands and scrublands across South Asia, North Africa, Western Asia and Central Asia.
- **Physical Features:** It has a grey/brownish-grey striped coat, sloping back, long legs, thick neck, large pointed ears and a long mane from the head to the tail.
- **Diet:** It is primarily a scavenger, feeding mainly on carrion and human refuse.
- **Behaviour:** Generally solitary and territorial, it marks its territory using scent, though small family groups may occur around dens.
- **Conservation:** Classified as Near Threatened (IUCN) and listed under Schedule I of the Wildlife Protection Act, 1972.

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Quick Bites:

- The Vice President of India, Shri C. P. Radhakrishnan, today launched the India Valve Registry at India Valves 2026, a national academic meeting dedicated to advancing the treatment of valvular and structural heart diseases, in Chennai. India Valves 2026 is a national academic meeting on valvular and structural heart disease, bringing together leading cardiologists, cardiac surgeons, researchers and healthcare professionals from across the country and abroad for scientific exchange, training and collaborative research.
- OpenAI recently released GPT-6 Astra, a frontier AI model designed for end-to-end, autonomous work rather than merely answering prompts. It can use computers and browsers, fill forms, update records, organise calendars, conduct web research, draft documents/emails, analyse scientific data and generate plots, build websites, install and test software, and troubleshoot on-screen problems. Thus, Astra represents a shift from prompt-based AI assistants toward more autonomous AI agents capable of executing multi-step real-world tasks.
- Rudra Raptors is a high-intensity joint military exercise conducted by the Indian Army's Konark Corps in the forward desert areas of Jaisalmer, Rajasthan, with the theme "One team, one purpose, absolute battlefield dominance." It integrated Thar Raptors' AH-64E Apache helicopters with the Black Mace Brigade's tanks and other all-arms elements, aiming to enhance seamless air-ground synergy and validate integrated battle strategies under realistic battlefield conditions.
- Sukhna Lake is an artificial lake in Chandigarh, located at the foothills of the Shivalik Hills, created in 1958 by damming the seasonal Sukhna Choe. Its area declined from about 230 ha to 154 ha by 2007 due to heavy siltation and soil erosion from its 4,200-ha catchment, prompting conservation measures including the Sukhna Lake Reserve Forest. The lake is bordered by a golf course to the south and Nek Chand Rock Garden to the west.
- The 36th annual Ig Nobel Prize ceremony was held on 3 September 2026 at the Zurich Convention Center in Switzerland. The event was hosted outside the United States for the first time in its history, and the awards are associated with the Annals of Improbable Research. The Ig Nobel Prize is a satirical award series that recognises research with unusual or humorous themes. The prizes are presented in several fields, including Chemistry, Medicine, Biology, Physics, Economics, and Peace-related categories in different years.

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- A state-of-the-art virtual museum on Sri Aurobindo was unveiled on 4 September 2026 at the India Space in Bharat Nivas, Auroville, Tamil Nadu, during commemorations linked to his 150th birth anniversary. The project was developed as a joint initiative of the Auroville Foundation, the Puducherry Government and the Union Ministry of Culture, and it was executed by the Central Public Works Department (CPWD).
- India won nine medals at the 19th International Earth Science Olympiad (IESO) 2026, held in Turin, Italy, from August 20 to 27, 2026. The International Earth Science Olympiad is an annual international competition for secondary school students in Earth science subjects. It includes written examinations, practical assessments, field investigations, and project-based tasks in geology, meteorology, oceanography, and astronomy.
- The Sovereign Wealth Fund Institute (SWFI) announced on 4 September 2026 that it will convene the inaugural iBRICS Summit in New Delhi, India. The two-day event is formally titled "The Global Sovereign & Private Deal Room" and is scheduled for 12–13 September 2026 at The Oberoi, New Delhi, on the sidelines of the 18th official BRICS Leaders' Summit.
- The Supreme Court of India announced on 3 September 2026 that India would host the three-day BRICS Chief Justices' Forum in New Delhi.
- Adani Defence & Aerospace signed a five-year agreement with Indo-Russian Rifles Private Limited for the supply of indigenous 7.62×39 mm small-calibre ammunition for the AK-203 assault rifle programme. The AK-203 is a 7.62×39 mm assault rifle produced in India at the Indo-Russian Rifles Private Limited manufacturing plant in Korwa in the Amethi district of Uttar Pradesh.
- The United Nations General Assembly adopted a resolution on 4 September 2026 to observe 27 November every year as the International Day for the Elimination of Child, Early and Forced Marriage. The resolution was adopted by consensus in the 193-member United Nations and was presented by Dr. Fatima Maada Bio, First Lady of Sierra Leone and President of the Organization of African First Ladies for Development.
- The United Nations General Assembly adopted the "Correct the Map" resolution on 4 September 2026 to address cartographic distortions in world maps. India voted in favour of the resolution and clarified that its support covered equal-area map projections in general, not the Equal Earth projection alone. The Mercator projection was developed in the 16th century and remains widely used for navigation. It preserves direction and shape locally, but it distorts area as latitude increases away from the equator.

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- The Central Drugs Laboratory (CDL) in Kasauli, Himachal Pradesh, has flagged a batch of Abhayrab vaccine, used against rabies, "not of standard quality" and "misbranded" after it failed a potency test, raising concerns of circulation of counterfeits and prompting a probe.

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07-09-2026

1. Vibrant Villages Programme:

Context: The Government is implementing the Vibrant Villages Programme in two phases that together cover India's entire international land border. VVP-I covers villages along the northern border. VVP-II extends the same approach to the other international land borders. Together, the two phases aim to cover more than 2616 villages with a combined outlay of Rs. 11,639 crore.

About Vibrant Villages Programme:

- **Objective:** Develop India's border villages as vibrant centres of growth by improving living conditions, generating livelihoods, empowering communities and strengthening border security.
- **VVP-I:** Announced in Union Budget 2022–23 and launched at Kibithoo, Arunachal Pradesh, on 10 April 2023; focuses on strategic villages along the northern border.
- **Coverage & Outlay:** VVP-I covers 662 strategic villages in 46 blocks across Arunachal Pradesh, Himachal Pradesh, Sikkim, Uttarakhand and Ladakh, with an outlay of ₹4,800 crore (2022–23 to 2026–27).
- **VVP-II:** Approved in April 2025 and launched at Nathanpur, Assam, on 20 February 2026; extends the programme to all land borders, excluding villages already covered under VVP-I.
- **VVP-II Coverage:** Covers 1,954 villages in 334 blocks across 15 States and 2 UTs, with an outlay of ₹6,839 crore up to 2028–29.
- **Infrastructure:** Focuses on all-weather roads, drinking water, electricity, telecom/internet connectivity, healthcare, education and SMART classrooms.
- **Livelihoods:** Promotes tourism, local culture, cooperatives, SHGs, skill development, social entrepreneurship and value chains, including One Block One Product (OBOP) initiatives.
- **Implementation Approach:** Uses Village Action Plans and a convergence-based approach to ensure saturation of existing government schemes according to local needs; road connectivity is supported through PMGSY-IV.

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- **Ministry & Implementation:** Ministry of Home Affairs (MHA) is the nodal ministry. VVP-I is a Centrally Sponsored Scheme implemented with States, while VVP-II is a Central Sector Scheme funded and implemented by the Centre through MHA, in coordination with States, district administrations and border guarding forces.
- **Strategic Significance:** Encourages people to remain in border villages, reduces out-migration, supports local economies and helps prevent trans-border crime, thereby linking development with national security.

2. Bar Council of India:

Context: Recently, the Supreme Court declared that the Bar Council of India (BCI) and its chairperson lack jurisdiction to discipline or penalise law students.

About Bar Council of India:

- **Statutory Body:** BCI is a statutory body created under the Advocates Act, 1961 to regulate and represent the legal profession in India.
- **Objective:** Safeguards the rights, interests and privileges of advocates across India.
- **Professional Regulation:** Prescribes standards of professional conduct and etiquette and exercises disciplinary jurisdiction over advocates.
- **Legal Education:** Sets standards for legal education and recognises universities whose law degrees qualify students for enrolment as advocates.
- **Advocate Welfare:** Supports welfare schemes for economically weaker and physically handicapped advocates.
- **AIBE:** Conducts the All India Bar Examination (AIBE) and grants the Certificate of Practice to eligible advocates.
- **Foreign Qualifications:** Recognises foreign law qualifications on a reciprocal basis for admission as advocates in India.
- **Composition:** Consists of members elected from State Bar Councils, along with the Attorney General of India and Solicitor General of India as ex-officio members. It elects its Chairman and Vice-Chairman from among its members.

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3. Ganymade:

Context: Magnetic and auroral evidence points to a vast ocean beneath Ganymede, but surface salts do not yet prove a direct connection through its roughly 150-kilometre ice shell.

About Ganymade:

- **Largest Moon:** Ganymede is the largest satellite of Jupiter and the largest moon in the Solar System, with a diameter of about 5,270 km, larger than Mercury.
- **Discovery:** It was discovered by Galileo Galilei in 1610 and is one of Jupiter's major Galilean moons.
- **Magnetic Field:** It is the only known moon with its own intrinsic magnetic field, generated by its metallic iron core.
- **Rotation:** Located about 1 million km from Jupiter, Ganymede shows synchronous rotation, always keeping the same face toward Jupiter.
- **Composition & Structure**: Its low density (~1.93 g/cm^3) indicates roughly half rock and half water ice by mass. It has a metallic iron core, rocky mantle and thick icy crust.
- **Subsurface Ocean:** Scientists believe Ganymede has a saltwater ocean beneath its icy surface, making it an important target in the search for potentially habitable environments.
- **Atmosphere:** It has a thin atmosphere containing hydrogen, with possible traces of carbon dioxide and other compounds.

4. Valles Marineris:

Context: A vastly larger outburst flood occurred on Mars during the Late Hesperian to Early Amazonian, when the breaching of paleolakes in Valles Marineris, the largest canyon system in the Solar System, unleashed a massive deluge.

About Valles Marineris:

- **Location:** Valles Marineris is a vast interconnected canyon system on Mars, extending roughly 4,000 km east–west, just south of the equator.
- **Discovery:** It was discovered and named after NASA's Mariner 9 mission in 1971.

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- **Size:** It is one of the largest canyon systems in the Solar System and is nearly nine times longer than Earth's Grand Canyon.
- **Extent:** The system spans about 20% of Mars' circumference; individual canyons can reach 200 km wide with walls 2–5 km high.
- **Deepest Region:** Several canyons merge centrally into a depression about 600 km wide and 9 km deep.
- **Formation:** Its formation involved tectonic faulting and erosion. Some walls are fault scarps associated with crustal movements around the Tharsis volcanic rise.
- **Sedimentary Evidence:** Thick sedimentary deposits within some canyons suggest that ancient lakes once occupied parts of the system.
- **Ancient Floods:** These lakes may have drained catastrophically eastward, leaving evidence of large-scale flooding on Mars.

5. Forest Rights Act 2006:

Context: The Ministry of Tribal Affairs (MoTA) has clarified that the Forest Rights Act (FRA), 2006 does not explicitly require Gram Sabha consent for forest clearance, and therefore such consent-related matters are not under its purview. However, forest-diversion guidelines require FRA rights to be settled and Gram Sabha NOC to be obtained before forest land can be diverted, creating a legal and procedural contradiction. The issue arose because delayed Gram Sabha consent has become a major bottleneck for hydropower projects, with NHPC proposing that 70–75% consent of affected Gram Sabhas should be sufficient for projects of national importance.

About Forest Rights Act 2006:

- **Objective:** Correct historical injustices against Scheduled Tribes (STs) and Other Traditional Forest Dwellers (OTFDs) by legally recognising their traditional forest rights.
- **Historical Background:** Colonial forest laws such as the Indian Forest Acts of 1878 and 1927 restricted traditional community rights and brought forests under greater government control.
- **Recognition of Rights:** Recognises both Individual Forest Rights (IFR) and Community Forest Rights (CFR) over forest land and resources.

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Rights for the dwellers

What the Forest Rights Act, 2006, entails

- Tenurial security over the forestland under occupation prior to December 13, 2005
- Recognition of community right over forest and forest products
- Protection and conservation of community forest resources
- Conversion of all forest villages and habitation located inside the forestland into revenue villages
- In situ rehabilitation of displaced persons evicted without compensation prior to December 13, 2005
- Recognition of ancestral domain (habitat) right to



Residents of Gunduribadi village in Odisha's Nayagarh district get ready for mapping their land boundaries for the Forest Rights Act implementation. ■ SPECIAL ARRANGEMENT

Particularly Vulnerable Tribal Groups

- Seasonal access to nomadic, pastoral and semi-nomadic communities over forestland

- Conversion of all leases granted by erstwhile governments, zamindars and king into permanent land records

- **Eligibility:** Covers forest-dwelling STs and OTFDs who occupied and depended on forest land before 13 December 2005; the 75-year/three-generation criterion should not be treated as a rigid cutoff.
- **Gram Sabha:** Gram Sabha is the starting and central authority—it receives, verifies and recommends claims, which then move to the SDLC and DLC for final decision.
- **Land Limit:** Individual forest-right titles are restricted to the actual area under occupation, subject to a maximum of 4 hectares.
- **Nature of Titles:** Rights are heritable but non-transferable, meaning forest land recognised under FRA cannot normally be sold or transferred.
- **Protection from Eviction:** Under Section 4(5), eligible forest dwellers cannot be evicted until their claims have been recognised and verified.
- **Community & Conservation Rights:** Communities can access and manage resources such as minor forest produce, bamboo and medicinal plants, and can protect and conserve Community Forest Resources.

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- **Other Rights:** FRA also recognises habitat rights of PVTGs and pastoral communities and provides for rehabilitation/development facilities such as roads, schools and healthcare in forest areas.

Quick Bites:

- The Sarang Helicopter Display Team of Indian Air Force has reached Egypt to participate in the 2nd edition of the EI Alamein International Airshow, scheduled to be held from 08 to 10 September 2026 at EI Alamein International Airport. The Sarang team will display its famous "Dolphin Leap" manoeuvre and also present a new manoeuvre called the Spot Stall Turn.
- Gegeneophis chandgadi is a newly discovered caecilian (legless amphibian) species from Maharashtra. Caecilians are worm-like, mostly underground amphibians that resemble earthworms or small snakes. The species was named chandgadi after the Chandgadi dialect of Marathi spoken in the region where it was discovered. The northern Western Ghats are identified as a hotspot for these elusive amphibians.
- Anak Krakatau is a stratovolcano (composite volcano) located in the Sunda Strait between Java and Sumatra, Indonesia, and forms part of the Pacific Ring of Fire. It is known as the “Child of Krakatau” and emerged after the catastrophic 1883 eruption of Krakatau, which caused major climatic effects including global cooling. Stratovolcanoes are steep-sided, cone-shaped volcanoes built from alternating layers of lava, ash and other volcanic materials, commonly occurring above subduction zones; they constitute about 60% of individual volcanoes on Earth.
- Thismia daemona is a newly discovered leafless flowering plant from Thong Pha Phum National Park in western Thailand. It belongs to the genus Thismia, commonly called “fairy lanterns.” These plants lack chlorophyll and cannot photosynthesise; instead, they obtain nutrients through fungal associations underground. They remain mostly hidden beneath leaf litter on the forest floor, emerging only briefly to flower.
- Exercise Veer Guardian 2026 is a bilateral air exercise between the Indian Air Force (IAF) and Japan Air Self-Defense Force (JASDF), being held at Jodhpur, Rajasthan. First conducted in 2023 at Hyakuri Air Base, Japan, the exercise aims to enhance interoperability, tactical proficiency, operational synergy and mutual understanding between the two air forces. The 2026 edition includes air-combat manoeuvring and complex operational scenarios.

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- India's direct tax buoyancy remained above 1 for the third consecutive financial year, with the figure at 1.39 in 2024–25. Direct tax buoyancy measures the rate of growth in direct tax collections relative to the rate of growth in nominal Gross Domestic Product. Direct tax buoyancy is a fiscal ratio used to compare changes in direct tax revenue with changes in nominal Gross Domestic Product. A buoyancy value above 1 means direct tax revenue grows faster than nominal Gross Domestic Product in the same period.
- Russia began the first oil transport through the Vostok Oil trunk pipeline on 5 September 2026, with crude loaded at the Sever Bay (Bukhta Sever) terminal in Krasnoyarsk Krai. The launch was linked to the Vostok Oil project, a large Arctic oil development led by Rosneft and connected to the Northern Sea Route. Vostok Oil is a Russian Arctic oil project associated with low-sulphur liquid hydrocarbons and large-scale pipeline and terminal infrastructure. Rosneft has placed the project's estimated resource base at about 7 billion tonnes of liquid hydrocarbons.
- Bhutan has become the first WHO Southeast Asia Region country to eliminate dog-transmitted rabies as a public health problem, validated by WHO, with its last rabies death reported in June 2023. Rabies is an almost invariably fatal viral disease after symptoms appear and still causes around 59,000 deaths globally each year, about one-third in India. In India, rabies is endemic across the country except Andaman & Nicobar and Lakshadweep, and about 96% of cases are linked to dog bites.

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08-09-2026

1. Swachh Vayu Sarvekshan Awards 2026:

Context: The Union Ministry of Environment, Forest and Climate Change (MoEFCC) organized the Swachh Vayu Diwas 2026 on 7th September, on the International Day of Clean Air for Blue Skies. 5th Swachh Vayu Sarvekshan Awards conferred on Best Performing Cities and Wards on Swachh Vayu Diwas 2026; Compendium of Best Management Practices under NCAP released.

About Swachh Vayu Sarvekshan Awards 2026:

- Swachh Vayu Sarvekshan is an initiative of MoEF&CC to rank cities based on air quality and implementation of City Action Plans under NCAP.
- Guidelines for the "Swachh Vayu Sarvekshan – Ranking of Cities" were released in September 2022.
- It covers 130 cities under the National Clean Air Programme (NCAP).
- Its aim is to assess efforts to reduce air pollution and support NCAP's target of up to 40% reduction in particulate pollution by 2025–26.
- Key objectives include creating public awareness, informing citizens about health impacts of air pollution, comparing air quality across cities, and achieving "Clean Air for All."
- City/ULB performance is assessed using information submitted through the PRANA portal, which tracks progress under NCAP.
- 2026 top performers: Category 1 (>10 lakh) – Surat, Jabalpur, Agra; Category 2 (3–10 lakh) – Firozabad, Amravati, Jhansi; Category 3 (<3 lakh) – Raebareli, Nalgonda, Nalagarh.
- City Category I (>10 lakh): Lucknow (198), Indore (197); Category II (3–10 lakh): Rourkela (198.5), Firozabad (195).
- City Category III (<3 lakh): Kalinga Nagar (198.5), Angul (196.5).
- Ward Category I (>30,000): Lucknow Zone 4 Ward 70, Bhopal BMC Ward 60; Ward Category II (10,000–30,000): Bhubaneswar BMC Ward 36 & Ward 30 (joint Rank 1).
- Ward Category III (<10,000): Rourkela RMC Ward 13, Nalgonda NLGW16.

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2. Platform for Aggregating Clean Transport (PACT):

Context: e-FAST India, an initiative of NITI Aayog, launches PACT to support accelerated zero-emission freight deployment in India.

About Platform for Aggregating Clean Transport (PACT):

- **Launched by:** Rajiv Gauba, Member, NITI Aayog, at the 5th e-FAST India Summit 2026.
- **Purpose:** Aggregate freight demand across India to accelerate deployment of zero-emission trucks (ZETs).
- **Demand aggregation:** Brings together shippers, Logistics Service Providers (LSPs) and other stakeholders and converts demand into deployment opportunities along identified freight corridors.
- **Ecosystem integration:** Connects shippers, LSPs, vehicle manufacturers, financiers, charge point operators (CPOs) and other partners.
- **Key benefits:** Improves freight-demand visibility, supports charging-infrastructure planning, and strengthens the commercial case for electric medium- and heavy-duty vehicles (e-MHDVs).
- **Flagship initiative:** PACT is a flagship initiative under the e-FAST India platform.

About e-FAST India:

- e-FAST India (Electric Freight Accelerator for Sustainable Transport - India) is a NITI Aayog-led platform that brings together government and industry stakeholders - including OEMs, logistics service providers, financiers, shippers and charge point operators - to accelerate the transition to zero-emission freight in India, particularly in the medium- and heavy-duty vehicle segments.

3. Vitamin B6:

Context: Vitamin B6 poisoning is extremely rare, but cases have increased by about 40% in the last decade, according to reports from America's Poison Centers.

About Vitamin B6:

- Vitamin B6 (pyridoxine) is a water-soluble vitamin, found naturally in foods and also in fortified foods/supplements.

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- It is essential for normal brain development and healthy nervous and immune systems.
- Helps in antibody production, normal nerve function, haemoglobin formation, protein metabolism and blood-glucose regulation.
- **Sources:** poultry, fish, potatoes, chickpeas, bananas and fortified cereals.
- **Deficiency risk:** higher in people with kidney disease, malabsorption disorders, certain autoimmune diseases, epilepsy medications and alcohol dependence.
- Deficiency can cause anaemia, confusion, depression, irritability, glossitis (mouth/tongue sores) and peripheral neuropathy.
- Excessive doses of B6 can cause movement-coordination problems, numbness and sensory changes.

4. Asian-Pacific Postal Union (APPU)

Context: Vinaya Prakash Singh, a 1988 batch officer of the Indian Postal Service, has been recently reelected as Secretary-General of the Asian-Pacific Postal Union (APPU) for a second consecutive four-year term.

About Asian-Pacific Postal Union (APPU):

- APPU is an intergovernmental organisation of 32 member countries in the Asian-Pacific region, headquartered in Bangkok, Thailand.
- It is the region's only Restricted Union of the Universal Postal Union (UPU), a UN specialised agency dealing with postal services.
- **Objective:** Facilitate and improve postal relations and promote cooperation in postal services among member countries.
- Since 1961, it has worked to improve services in express, parcels, e-commerce, logistics, letter post and financial services.
- It coordinates the regional position on global postal issues and helps implement UPU technical and operational projects in the region.
- **Three bodies:** Congress (supreme organ), Executive Council (annual work of the Union), and APPU Bureau (liaison, information, inquiry and training).

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- The Secretary General leads APPU and is also Director of the Asian Pacific Postal College (APPC), Bangkok, the region's largest intergovernmental postal training institute.

5. Su-30 MKI:

Context: India has taken up a proposal to modify the Indian Air Force's Su-30 MKI fighter aircraft for integration with the Russian-origin RVV-BD air-to-air missile. The proposal covers changes to the aircraft's radar, avionics, and weapons management software for operational use.

About Su-30 MKI:

- Su-30MKI is a 4th-generation multirole combat fighter jointly developed by Sukhoi Design Bureau and HAL for the Indian Air Force, based on the Su-30.
- It features thrust-vectoring control and canards, improving manoeuvrability.
- Powered by two AL-31FP aero engines, which are high-temperature, modular bypass engines.
- The IAF's Su-30MKI is capable of carrying the air-launched BrahMos supersonic cruise missile, successfully tested in 2017.
- It is equipped with the indigenous Tarang Radar Warning Receiver (RWR) developed by DRDO.
- Range: about 3,000 km unrefuelled; up to 8,000 km with two aerial refuellings.
- Manufacturer: Hindustan Aeronautics Limited (HAL).

6. National Film Awards:

Context: The National Film Awards ceremony will take place in Gujarat for the first time on September 22, with the 72nd edition scheduled in Ekta Nagar. President Droupadi Murmu will present the awards, government officials said on Monday. The move to Ekta Nagar marks a departure from the awards' traditional venue in Delhi.

About National Film Awards:

- **Established:** 1954 to recognise and promote excellence in Indian cinema, art and culture.
- **Administration:** Administered by the Directorate of Film Festivals since 1973.

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- **Organizer:** Conducted by the Ministry of Information and Broadcasting on behalf of the Government of India.
- **Major Sections**: Feature Films, Non-Feature Films, Best Writing on Cinema, and Dadasaheb Phalke Award.
- **Selection:** Winners are chosen annually by a national panel appointed by the Government of India.
- **Significance:** Recognises outstanding cinematic contributions across India's diverse regions and languages, alongside events like IFFI and Indian Panorama.

7. Carbon Credit Trading Scheme (CCTS):

Context: In a major breakthrough, the U.K. has recognised India's Carbon Credit Trading Scheme (CCTS) as a qualifying criterion for pricing relief under its carbon border adjustment mechanism (CBAM), a move that would reduce the tax burden on domestic exporters.

About Carbon Credit Trading Scheme (CCTS):

- CCTS is a market-based framework under the Indian Carbon Market (ICM) that puts a monetary value on GHG emissions.
- **Objective:** Decarbonise industries by shifting from energy-efficiency targets under Perform, Achieve and Trade (PAT) to direct GHG emission-intensity reduction.
- **Governance:** Overseen by the Bureau of Energy Efficiency (BEE) and National Steering Committee for Indian Carbon Market (NSCICM).
- **PAT → CCTS:** PAT used Energy Saving Certificates (ESCerts), while CCTS issues Carbon Credit Certificates (CCCs); 1 CCC = 1 tonne of CO_2 equivalent reduced.
- **Eight target sectors:** Aluminium, cement, pulp & paper, chlor-alkali, iron & steel, textiles, petrochemicals and refineries.
- **Compliance mechanism:** Entities exceeding emission-intensity targets earn tradable CCCs, while those failing to meet targets must purchase credits.
- **Offset mechanism:** Entities outside mandatory sectors can voluntarily reduce emissions and earn carbon credits.

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- **Power sector:** Despite contributing a large share of emissions, it is currently excluded from the compliance mechanism and may be included later; CCTS supports India's 2030 NDC target of reducing GDP emission intensity by 45% from 2005 levels.

Quick Bites:

- Union Minister of State (I/C) for Ayush and Union Minister of State for Health & Family Welfare, Shri Prataprao Jadhav, addressed the Curtain Raiser Press Conference for the 11th Ayurveda Day 2026 at the National Media Centre, New Delhi. The event marked the commencement of the nationwide campaign leading up to Ayurveda Day. The main Ayurveda Day celebrations will be held on 23 September 2026 in Nagpur, Maharashtra, with "Ayurveda for a Healthier Tomorrow" as its theme, reflecting the vision of connecting India's rich Ayurvedic heritage with the evolving healthcare needs of the future.
- The Directorate General of Foreign Trade (DGFT), Ministry of Commerce and Industry, has introduced an Open Application Programming Interface (API) facility for the issuance and verification of Certificates of Origin (CoO) through the Trade Connect e-Platform. The facility is now available for use by eligible exporters and their systems. The Open API facility enables exporters to integrate their Enterprise Resource Planning (ERP), accounting or other business software directly with the DGFT's CoO system.
- More than 600 Internet experts, policymakers and technology leaders will meet in Mumbai this September for the 62nd APNIC Conference (APNIC 62) as Artificial Intelligence (AI), cybersecurity and rapidly growing demand for digital services are putting pressure on the underlying Internet infrastructure needed to support these areas, as well as future Internet-enabled innovation. Hosted by the National Internet Exchange of India (NIXI) and the Internet Service Providers Association of India (ISPAI) with the support of the Ministry of Electronics and Information Technology (MeitY) and Government of Maharashtra, APNIC 62 is organized by the Asia Pacific Network Information Centre (APNIC), the region's not-for-profit Internet number registry.
- The Ministry of Women and Child Development, Government of India, will launch the 9th Rashtriya Poshan Maah 2026 on 9th September 2026 at the Rudraksh International Cooperation and Convention Centre, Varanasi, Uttar Pradesh. Rashtriya Poshan Maah (National Nutrition Month) is a month-long

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nationwide campaign celebrated every September in India to raise awareness about nutrition and address the challenges of malnutrition.

- The Corded Ware Culture was a widespread prehistoric European cultural group that existed roughly 3000–2350 BC, spanning from the Rhine River in western Europe to the Volga River in eastern Europe, covering parts of Northern, Central and Eastern Europe. It represents the late Stone Age, Copper Age and early Bronze Age transition, and was not a single homogeneous population, as different regional communities had distinct lifestyles, subsistence practices and cultural traditions. Recent archaeological finds near Wrocław, Poland, including a 42-tooth necklace, an adult male skeleton, stone weapons and human skull remains, provide further insights into this culture.
- The LORA (Long Range Artillery) is an Israeli short-range, road-mobile, ground- and sea-launched ballistic missile, reportedly in Israeli service since 2007, designed to hit high-value targets deep inside enemy territory. It is a single-stage, solid-propellant missile with a 280 km range, 600 kg payload capacity, and can carry a high-explosive warhead or submunitions. Germany recently conducted a test of the LORA missile in the North Atlantic.
- The Eastern Economic Forum (EEF) is an annual international forum established by Russian President Vladimir Putin in 2015 and held in Vladivostok, Russia. Its main objective is to promote the economic development of Russia's Far East and expand international cooperation in the Asia-Pacific region. It brings together governments, businesses, investors and experts to discuss economic cooperation, investment opportunities and strengthen ties between Russian and global investment communities.
- Poompuhar (Kaveripoompattinam) is an ancient port city of the Early Cholas in Mayiladuthurai district, Tamil Nadu, located near the Cauvery River–Bay of Bengal confluence. 'Puhar' means river estuary in Tamil. It was once a flourishing commercial centre and briefly served as the capital of the Early Chola kings. Archaeological evidence, including 4th-century BCE pottery found offshore, indicates its great antiquity, while Silappathikaram and Manimekalai describe its importance in Tamil literature.
- Google has launched India-first artificial intelligence models for agriculture through Google DeepMind's AnthroKrishi team. The two models are Agricultural Landscape Understanding (ALU) and Agricultural Monitoring and Event Detection (AMED), and they are designed to generate field-level agricultural intelligence.

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- Indian men's doubles pair Satwiksairaj Rankireddy and Chirag Shetty won the China Masters title on 6 September 2026 at Shenzhen Arena in Shenzhen, China.
- The U.S.-India TRUST Fellowship was launched in Bengaluru in September 2026 to support collaborative research between American scholars and Indian institutions. TRUST stands for Transforming the Relationship Utilizing Strategic Technology, and the programme is linked to the bilateral TRUST framework announced by the United States and India in February 2025.
- The Indian Army has set up AASHVAST, a software analysis and validation laboratory at the Directorate General of Electronics and Mechanical Engineering (DG EME) headquarters in New Delhi. The facility is designed to scan military drones and other electronic systems for hidden software threats, unauthorised components, and security vulnerabilities.

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09-09-2026

1. Global Fintech Fest (GFF) 2026:

Context: The 7th edition of GFF is being held in Mumbai from 8 to 11 September 2026.

About Global Fintech Fest (GFF) 2026:

- Global Fintech Fest (GFF) provides a platform for global dialogue, collaboration and innovation in financial technology.
- Established in 2020, GFF has grown into one of the world's leading/largest fintech gatherings.
- It showcases India's digital financial architecture and fintech capabilities and facilitates exchange of ideas with global innovators.
- GFF strengthens India's engagement with developed economies, emerging markets and the Global South.
- **Principal organisers:** Payments Council of India (PCI), National Payments Corporation of India (NPCI) and Fintech Convergence Council (FCC).
- **GFF 2026 theme:** "Potential to Impact: Agentic AI | Tokenisation | Quantum: Trusted, Connected, Global Systems for Inclusive Finance."
- **Agentic AI:** Enables financial systems to sense, decide and act in real time, improving workflows, fraud prevention, regulatory oversight and personalised financial services.
- **Tokenisation:** Converts assets into programmable digital units, enabling fractional ownership, instant settlement, greater liquidity and wider access to financial markets.
- **Quantum technology:** Supports quantum-safe cryptography and advanced risk optimisation, enhancing the security, resilience and long-term trust of financial infrastructure.

2. Rashtriya Poshan Maah:

Context: The Rashtriya Poshan Maah (National Nutrition Month) is observed every September as a dedicated platform to mobilise communities and reinforce key nutrition, health and caregiving behaviours

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among pregnant women, lactating mothers, children, adolescents, and their families. The 9th Poshan Maah 2026, which will be launched on Sept. 9, 2026, highlights the importance of Anganwadi Centres.

About Rashtriya Poshan Maah:

- Rashtriya Poshan Maah is observed every September to spread awareness about Mission POSHAN 2.0 and nutrition-related goals. The 9th Poshan Maah will be launched on 9 September 2026 in Varanasi, Uttar Pradesh.
- **Theme 2026:** "Hamari Anganwadi, Hamari Jimmedari", focusing on Anganwadi Centres (AWCs) as the centre of community-led nutrition, childcare and early childhood development.
- **Dietary Diversity & Protein:** Promotes diverse diets including millets, cereals, pulses, fruits, vegetables, nuts, seeds, milk products and eggs, with emphasis on adequate protein and locally available foods.
- **Fresh Hot Cooked Meals (HCM):** Focus on fresh, hygienic and nutritious meals at AWCs through weekly menu rotation, HCM demonstrations, quality testing with FSSAI, and community tasting sessions.
- **Community Ownership & Accountability:** Strengthening Anganwadi Management Committees (AMCs) and displaying SNP Menu Boards to improve transparency, community monitoring and accountability in nutrition service delivery.
- **Nutrition + Early Childhood Development:** Emphasises the link between adequate nutrition, early stimulation and cognitive development, particularly during the first 1,000 days; promotes the revised Home Visit Scheduler, Navchetna and Aadharshila curricula and referral of children with developmental delays.
- **PMMVY & Jan Andolan:** The 2026 Poshan Maah will mark 10 years of Pradhan Mantri Matru Vandana Yojana (PMMVY) through saturation drives and awareness campaigns. Overall, Poshan Maah promotes nutrition as a "Jan Andolan" (people's movement) through active community participation.

3. Virtual Private Networks (VPNs):

Context: Authorities in Jammu and Kashmir's Doda recently ordered a complete ban on the use of Virtual Private Networks (VPNs) across the district for two months, citing concerns over cybersecurity, unlawful activities and maintaining public order.

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About Virtual Private Networks (VPNs):

- VPN creates a secure, encrypted connection ("tunnel") between a user's device and a VPN server.
- It hides the user's actual IP address and protects internet traffic from unauthorized interception, especially on public networks.
- VPNs are used for privacy, data security, secure remote access, and accessing geographically restricted content.
- Organizations use VPNs to provide authorized employees with secure access to corporate networks, databases and proprietary applications from different locations.
- Access to restricted resources generally requires authentication, such as passwords, security tokens or biometric verification.
- VPNs are useful for remote employees, freelancers, business travellers and journalists who need secure access to networks or content.
- VPNs do not provide complete anonymity; for example, an ISP may still observe the size/volume of traffic, even though it cannot see the encrypted content.
- Overall, VPNs primarily provide encryption, privacy, secure remote connectivity and IP masking, rather than absolute anonymity.

4. Havelis:

Context: The Rajasthan state government announced recently that the historic and richly frescoed havelis of Rajasthan's Shekhawati region have been included in UNESCO's tentative list.

About Havelis:

- Havelis are traditional large mansions/townhouses built around an open central courtyard, with the term derived from Arabic hawali, meaning "private space."
- They are found across India, especially in Rajasthan, Punjab and Gujarat, where their design helps cope with extreme climatic conditions.
- Their central courtyards provide natural light and ventilation, while the inward-facing design improves thermal comfort.

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- Havelis are known for jharokhas (ornamental balconies), latticework, frescoes, carved elements and decorative façades.
- Shekhawati Havelis, located in northeastern Rajasthan, are particularly famous for their richly painted frescoes on façades, courtyards and interiors.
- Their paintings depict Hindu mythology, royal traditions, local life, and even the influence of modern technology and foreign cultures, making them valuable historical records.
- Many havelis, once family residences of royalty and wealthy merchants, are now preserved as heritage hotels, cultural centres and living museums.

5. Bhitarkanika National Park:

Context: Recently, hundreds of saltwater crocodile hatchlings have begun emerging from nests in the Bhitarkanika National Park.

About Bhitarkanika National Park:

- Location: Situated in Odisha, in the estuarine region of the Brahmani, Baitarani and Dhamra rivers.
- It is India's second-largest mangrove ecosystem after the Sundarbans and is surrounded by the Bhitarkanika Wildlife Sanctuary.
- Gahirmatha Beach and Marine Sanctuary lie to its east and separate the mangrove ecosystem from the Bay of Bengal.
- The park is a Ramsar site, with tropical and subtropical intertidal vegetation dominated by mangroves, along with casuarinas and grasses.
- It hosts India's largest congregation of saltwater crocodiles, making it an important reptile habitat.
- Gahirmatha Beach supports the world's largest nesting colony of Olive Ridley sea turtles, while the park also supports diverse terrestrial fauna and migratory birds.

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6. Dedicated freight corridor:

Context: Speaking at the inauguration of three key sections of the Western Dedicated Freight Corridor, connecting Jawaharlal Nehru Port in Navi Mumbai with Dadri in Uttar Pradesh, and marking the project's completion, Mr. Modi praised his administration's pace of execution and called the former UPA regime's working speed "sluggish".

What is Dedicated Freight Corridor?

- It is a high speed and high capacity railway corridor that is exclusively meant for the transportation of freight.

India's Dedicated Freight Corridors:

- DFC is a major rail freight infrastructure project aimed at improving freight transport efficiency in India.
- It is implemented by Dedicated Freight Corridor Corporation of India Limited.
- DFCCIL was established in October 2006.
- It functions as a Special Purpose Vehicle under the Ministry of Railways.
- The total planned length of DFCs is 3,306 km.
- The total estimated project cost exceeds ₹81,000 crore.
- DFC consists of two corridors: Eastern DFC and Western DFC.

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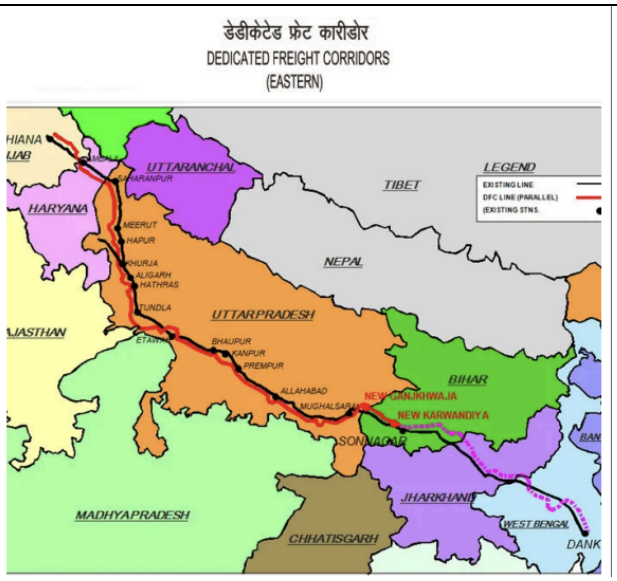
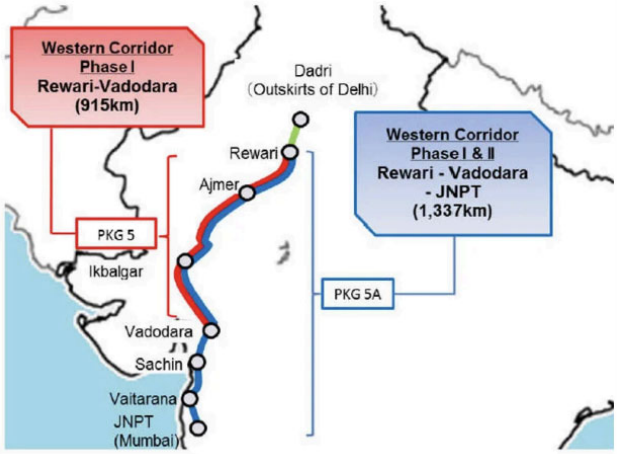
Dedicated Freight Corridor (Eastern)	Dedicated Freight Corridor (Western)
	
Runs from Ludhiana to Dankuni	Runs from Jawaharlal Nehru Port to Dadri
Total length: 1,337 km	Total length: 1,506 km
Passes through Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal	Passes through Maharashtra, Gujarat, Rajasthan, Haryana, Uttar Pradesh
Focuses on coal, steel, and bulk cargo transport	Focuses on containerized cargo and port connectivity
Funded mainly by World Bank	Funded by Japan International Cooperation Agency
Connects industrial belt of North India to Eastern ports	Connects Western ports to Northern hinterland
High relevance for power plants and heavy industries	High relevance for EXIM trade and logistics

7. CosmoCube satellite:

Context: CosmoCube is a proposed small satellite that will orbit the Moon and use the Moon's far side as a natural shield from Earth's radio interference to detect the extremely faint 21-cm radio signal from neutral hydrogen in the early universe. This signal can help scientists study the Cosmic Dark Ages (≈380,000 years–200 million years after the Big Bang) and the transition to the Cosmic Dawn, when the first stars and galaxies formed.

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About CosmoCube satellite:

- CosmoCube is a proposed suitcase-sized satellite mission aimed at studying the Cosmic Dark Ages, before the formation of the first stars.
- **Developed by:** An international team led by the University of Cambridge, UK; it aims to detect the ancient 21-cm hydrogen line from the early Universe.
- **Lunar Shield:** The satellite will orbit the Moon and use its far side as a natural shield against Earth's radio interference.
- **Observation:** During each 2-hour orbit, it will spend about 40 minutes behind the Moon collecting low-frequency radio signals.
- **Scientific importance:** The observations could reveal how dark matter contributed to the formation of the first stars and galaxies and provide insights into the early Universe.
- **Mission plan:** A 2-year mission is planned, with around 1,000 hours of scientific data; it could be ready for launch within about five years.
- **Challenge:** Increasing lunar activity and infrastructure on the far side could disturb the naturally radio-quiet environment needed for such sensitive observations.

8. TRISHNA mission:

Context: The French space agency Centre National d'Etudes Spatiales (CNES) has said that it is not perturbed with the back-to-back failures of the Indian Space Research Organisation's (ISRO)'s workhorse rocket, the Polar Satellite Launch Vehicle (PSLV), and has complete trust in its Indian partner. The PSLV is scheduled to launch the Indo-French TRISHNA (Thermal Infra-Red Imaging Satellite for High-resolution Natural Resource Assessment) mission next year. It is a collaborative endeavour between the ISRO and the CNES.

About TRISHNA mission:

- TRISHNA = Thermal Infrared Imaging Satellite for High-resolution Natural Resource Assessment; it is a joint ISRO–CNES (France) Earth-observation mission.

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- **Objectives:** High-resolution monitoring of Earth's surface temperature, vegetation health and water-cycle dynamics, including urban heat islands, volcanic/geothermal activity, snowmelt and glaciers.
- **TIR – Thermal Infrared (TIR) Payload:** Provided by CNES; has a 4-channel long-wave infrared sensor for mapping surface temperature and emissivity.
- **VNIR-SWIR – Visible–Near Infrared–Shortwave Infrared (VNIR-SWIR) Payload:** Developed by ISRO; has 7 spectral bands for detailed surface-reflectance mapping and deriving biophysical and radiation-budget parameters.
- Combined data from both payloads will help estimate surface energy balance and heat fluxes, along with aerosol optical depth, atmospheric water vapour and cloud cover.
- **Orbit & mission life:** 761-km sun-synchronous orbit, with 57-m resolution over land/coastal areas and 1-km over oceans/polar regions; designed for a 5-year operational life.

Quick Bites:

❖ In a significant gain for citizen protection in the digital economy, the Department of Telecommunications (DoT) has helped prevent suspected cyber fraud losses of more than ₹5,000 crore through its Financial Fraud Risk Indicator (FRI) within fifteen months of its launch on 22nd May 2025. This money did not have to be traced, frozen or recovered. It never left the citizen's account in the first place. The FRI is an innovative risk-assessment framework developed by DoT to help financial institutions assess in real time, the likelihood that a mobile number may be associated with cyber-crime or financial fraud. FRI is developed under DoT's Digital Intelligence Platform (DIP), that classifies mobile numbers into 3 categories namely Medium, High, or Very High risk-based on likelihood of their involvement in financial fraud.

❖ Indian Air Force (IAF) and the Japan Air Self Defence Force (JASDF) will conduct bilateral Air Exercise, Veer Guardian-2026, at Air Force Station Jodhpur, from 09 Sep 26 to 22 Sep 2026. The Indian Air Force will participate with a diverse mix of frontline combat aircraft including indigenous Light Combat Aircraft (LCA) Tejas, Su-30 MKI and Rafale. JASDF will participate with its F-2A fighter aircraft.

❖ IAF is organising Dronathon-2026 with an aim to offer domestic manufacturers to exhibit their capabilities and advancements in Unmanned Aerial Systems (UAS) and Counter Unmanned Aerial Systems (CUAS).

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The event is designed to help stakeholders to witness emerging drone and counter drone technologies along with their operational demonstration and foster mutual learning.

- Software Technology Parks of India (STPI), a premier S&T organization under the Ministry of Electronics & Information Technology (MeitY), organized the STPI Electropreneur Summit 2026 at IIIT-Delhi. The summit brought together government leadership, academic pioneers, and industry stalwarts to deliberate on expanding India's Electronics System Design and Manufacturing (ESDM) footprint.
- MatsyaMetri is a smartphone app developed by the Central Marine Fisheries Research Institute (CMFRI), Kochi, to measure the length and width of fish without physically handling them. Designed for fisheries scientists and field teams, it enables rapid collection of biological data, automatically records measurements, generates length-frequency datasets, and allows multiple individuals of the same species to be measured in a single sampling session.
- Barakuru (Barkur) is an ancient historical port town in Udupi district, Karnataka, situated on the banks of the Sita River, about 5 km from the Arabian Sea coast. It was known in ancient times as Varakula, Barakanur and Barahkanyapura and served as a busy commercial centre from around the 2nd century BCE, with evidence of Mesolithic and Megalithic cultures. Its strategic maritime location enabled extensive trade with foreign countries across the Arabian Sea, contributing to its economic prosperity. A historically significant Siditale hero stone was recently discovered during an epigraphical survey at the Panchalingeshwara Temple.
- The Cell Broadcast System (CBS) is an indigenous public warning system developed by C-DOT under the Department of Telecommunications, in collaboration with NDMA and MHA. It enables authorities to send simultaneous, geo-targeted emergency alerts to all mobile phones in a specific area. Unlike SMS, CBS uses broadcast technology that allows rapid delivery even during network congestion, making it useful for disaster and emergency warnings.
- Coastal Local Area Bank Limited, headquartered in Vijayawada, was included in the Second Schedule to the Reserve Bank of India Act, 1934, and received scheduled bank status.
- Astrogate Labs, an Indian deep-tech startup, has announced the development of India's first indigenous Optical Inter-Satellite Link (OISL) terminal. The system is designed for direct satellite-to-satellite laser communication and marks a shift from space-to-ground optical links to in-orbit connectivity. An Optical

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Inter-Satellite Link uses laser beams for communication between satellites in space. OISL systems are used in satellite constellations, especially in Low Earth Orbit (LEO), where fast data transfer and reduced dependence on ground stations are required.

- The 27th World Knowledge Forum opened in Seoul, South Korea, on 8 September 2026 at Jangchung Arena and The Shilla Seoul. The three-day forum, organised by Maekyung Media Group, runs until 10 September 2026 and focuses on artificial intelligence, co-intelligence, and global economic change.
- India joined a multilateral initiative on 7 September 2026 to guide the development and deployment of next-generation 6G telecommunications networks. The initiative includes the United States and 24 other nations and covers security, competitiveness, and technology innovation in advanced wireless systems.
- Russia and North Korea opened the first road bridge across their narrow stretch of border on Monday, creating a new physical link between the two countries as they expand cooperation. The bridge built over the Tumen River is one km long and has two lanes, which will allow up to 300 vehicles a day to pass.

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10-09-2026

1. Call to Action for 6G Leadership and Security:

Context: India has endorsed the Call to Action for 6G Leadership and Security, joining a group of like-minded governments that have committed to shaping the sixth generation of wireless communications on the principles of openness, interoperability, security, resilience, resource efficiency and innovation-led competition.

About Call to Action for 6G Leadership and Security:

- **Initiative:** International initiative for 6G telecommunications networks, launched by the National Telecommunications and Information Administration (NTIA) under the US Commerce Department.
- **Partners:** Includes 26 partner countries, including India and the United States.
- **Objective:** Ensure 6G networks reflect shared security interests, while strengthening competitiveness and innovation.
- **Network Security & Interoperability**: Promotes secure and interoperable 6G networks across countries and systems.
- **Resilience & Trusted AI:** Aims for resilient 6G infrastructure and the use of trusted Artificial Intelligence (AI).
- **Overall Goal:** Build a secure, reliable and innovative global 6G ecosystem.

About Bharat 6G Alliance (B6GA):

- **Launched:** Bharat 6G Alliance (B6GA) was launched on 3 July 2023 by the Union Minister of Communications.
- **Vision:** It was established to implement the Bharat 6G Vision, unveiled by Prime Minister Narendra Modi on 22 March 2023.
- **Nature:** It is an industry-led, government-facilitated alliance promoting collaboration in India's telecom innovation ecosystem.

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- **Members:** Brings together industry, startups, academia, research institutions, public/private companies, and Standards Development Organizations (SDOs).
- **Purpose:** Strengthens the domestic R&D, innovation, and Intellectual Property Rights (IPR) ecosystem through industry–academia collaboration.
- **Key Functions**: Identifies technology gaps, develops advanced research projects, and creates 6G testbeds aligned with India's 6G Vision.
- **Major Goal:** Position India as a global leader and supplier of affordable 5G, 6G, and future telecom technologies, products, and intellectual property (IP).
- **6G Features:** Aims to deliver ultra-high speeds, ultra-low latency, high reliability, AI-enabled intelligent networks, and integrated wireless sensing & communication, surpassing 5G capabilities.
- **Long-term Target:** By 2030, deploy 6G as a force multiplier for India's digital economy while ensuring energy efficiency, sustainability, and reduced carbon footprint.

2. ORV Sagar Mantha:

Context: Marking a historic milestone in India's journey toward self-reliance in oceanographic science and maritime technology, the state-of-the-art Ocean Research Vessel (Yard 3041), officially named ORV Sagar Manthan, was launched today at the Rishi Bankim Shipyard, Kolkata.

About ORV Sagar Mantha:

- Ocean Research Vessel Sagar Manthan is India's first advanced ocean research vessel built by Garden Reach Shipbuilders & Engineers Limited for the National Centre for Polar and Ocean Research, under the Ministry of Earth Sciences.
- **Built under Vertical-4:** Deep Ocean Survey and Exploration of the Deep Ocean Mission, at a cost of about ₹840 crore.
- It is an all-weather, multidisciplinary research vessel designed to operate in extreme oceanic environments, including the Southern Ocean, with a 30-year service life.
- Equipped with Dynamic Positioning, Multibeam Bathymetry, Multichannel Seismic Systems, Sub-bottom Profiling, Weather Radar, Drop Keels, Remotely Operated Vehicles and Autonomous Underwater Vehicles.

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- It will support deep-ocean exploration, hydrothermal sulphide mineralisation studies, environmental baseline surveys, atmospheric observations and Conductivity-Temperature-Depth profiling.
- It represents Atmanirbharta in ocean research, as India moves from importing research vessels to indigenous design and construction.
- It will gradually replace the 43-year-old Ocean Research Vessel Sagar Kanya and is scheduled for commissioning in 2028.

3. Bhoramdev Wildlife Sanctuary:

Context: Wildlife and bird monitoring at the renowned Bhoramdev Wildlife Sanctuary in Chhattisgarh is set to receive a technological boost, with the Forest Department preparing to introduce a "bird hearing" technology to track the presence and activities of birds and other wildlife.

About Bhoramdev Wildlife Sanctuary:

- Located in Kawardha district, Chhattisgarh, within the Maikal Range of the Satpura Hills, covering about 352 sq. km.
- Part of the Kanha–Achanakmar wildlife corridor, connecting Kanha National Park (Madhya Pradesh) with Achanakmar Wildlife Sanctuary (Chhattisgarh).
- Named after the nearby Bhoramdeo Temple, an ancient 7th–11th century temple complex built by the Nagvanshi dynasty and dedicated to Lord Shiva; called the "Khajuraho of Chhattisgarh."
- Characterised by undulating hills, dense forests and numerous streams; the Sakari River provides drinking water for wildlife.
- Vegetation consists mainly of tropical moist and dry deciduous forests, with saaj, sal, tendu and eucalyptus.
- Important fauna includes Bengal tiger, leopard, sloth bear, sambar, gaur, wild boar and monitor lizard, along with 100+ bird species.
- The surrounding region is inhabited by tribal communities including the Baiga, Gond and Kanwar.

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4. Shivneri Fort:

Context: The cultural affairs minister recently directed the authorities to conduct an "objective assessment" of unauthorised constructions and other structures, including graves and dargahs, in and around Shivneri Fort and take appropriate action.

About Shivneri Fort:

- **Location:** Ancient hill fort near Junnar, Pune district, Maharashtra; famous as the birthplace of Chhatrapati Shivaji Maharaj.
- **History:** Originally associated with the Satavahanas, and later occupied by the Shilaharas and Yadavas.
- **Strategic Importance:** Protected an important trade route connecting the Desh region with Kalyan port.
- **Medieval History:** Came under the Bahmani Sultanate in the 15th century and later the Ahmadnagar Sultanate in the 16th century.
- **Maratha Connection:** In 1595, Ahmadnagar Sultan Bahadur Nizam Shah granted Shivneri and Chakan forts to Maloji Bhosale, grandfather of Shivaji Maharaj.
- **Birthplace:** Shivaji Maharaj was born here on 19 February 1630; some historical records give 1627 as the birth year.
- **Fort Features:** A triangular hill fort with seven fortified winding gates, strong walls, Badami Talav, and perennial Ganges and Yamuna water springs.
- **Nearby Heritage:** The ancient Lenyadri Buddhist rock-cut caves are located about 2 km from Shivneri Fort.

5. Financial Intelligence Unit-India (FIU-IND):

Context: Recently, the Director, Financial Intelligence Unit-India (FIU-IND) has issued notices for non-compliance to following fifteen (15) Virtual Digital Assets Service Providers (VDA SPs) under Section 13 of the Prevention of Money Laundering Act, 2002(PMLA).

About Financial Intelligence Unit-India (FIU-IND):

- **Established:** Set up by the Government of India in 2004 as the central agency for financial intelligence.

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- Role: Receives, processes, analyses and disseminates information on suspicious financial transactions related to money laundering and other financial crimes.
- **Reporting:** An independent body that reports directly to the Economic Intelligence Council (EIC), headed by the Finance Minister.
- **Collection & Analysis:** Receives Cash Transaction Reports (CTRs), Non-Profit Organisation Transaction Reports (NTRs) and Cross-Border Wire Transfer Reports (CBWTRs) and analyses them for suspicious patterns.
- **Information Sharing & Coordination:** Shares intelligence with law-enforcement, intelligence, regulatory agencies and foreign Financial Intelligence Units and coordinates national/international financial intelligence networks.
- **Database & Research:** Maintains a national financial intelligence database and monitors money-laundering trends, typologies and emerging developments.

6. BrahMos Belt Strategy:

Context: Recently, India Develops BrahMos Belt Strategy

About BrahMos Belt Strategy and BrahMos missile:

- **Meaning:** "BrahMos Belt" is a strategic concept, not a formal military alliance or treaty, referring to a network of BrahMos missile cooperation with Southeast Asian countries.
- **BrahMos Missile**: A supersonic cruise missile jointly developed by India and Russia through India's Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroyenia.
- **Name:** "BrahMos" combines the Brahmaputra River of India and the Moskva River of Russia.
- **Key Capability:** Travels at around Mach 2.8–3, with precision-strike capability against maritime and land targets.
- **Multi-platform:** Can be launched from land, warships, submarines and aircraft; its anti-ship capability supports maritime deterrence and sea-denial.
- **Philippines:** Became the first foreign buyer of BrahMos, signing a deal in 2022 for a shore-based anti-ship missile system.

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- **Regional Expansion:** Vietnam and Indonesia are important potential/expanding partners, while Thailand and Malaysia have also been associated with potential acquisition.
- **Strategic Geography:** A wider network of BrahMos-equipped states could create a strategic chain around China's maritime periphery, particularly around the South China Sea.
- **Regional Security:** Aims to strengthen coastal defence, maritime security and deterrence against potential maritime threats.
- **India's Strategic Objectives:** Helps deepen India–Southeast Asia defence ties, strengthen India's Indo-Pacific role, and promote defence cooperation.
- **Defence Exports:** Expands India's defence exports and defence-industrial partnerships, while providing partner countries an alternative to dependence on major external military powers.
- **Overall:** The strategy seeks to build regional defence partnerships and distributed maritime deterrence through BrahMos cooperation.

7. Orangutans:

Context: The Special Task Force (STF) of the Odisha Police on Wednesday began a probe into the circumstances surrounding the rescue of five young orangutans from a coastal forest in Balasore district. The Odisha Forest and Environment Department has also approached the Wildlife Crime Control Bureau (WCCB), seeking its expertise in investigating cases involving the illegal trafficking of wild animals.

About Orangutans:

- **Species:** Three recognised species—Bornean, Sumatran and Tapanuli orangutans; all are naturally found in Southeast Asia.
- **Distribution & Habitat:** Wild orangutans are restricted to Borneo and Sumatra (Indonesia and Malaysia) and are not native to India; they inhabit lowland peat-swamp as well as mountainous forests.
- **Conservation Status:** All three species are classified as Critically Endangered (IUCN).
- **Arboreal Adaptation:** They are exclusively arboreal, spending over 90% of waking hours in trees; long arms, curved fingers/toes and shorter legs aid movement through the canopy.

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- **Physical Features:** They have orange/reddish hair, very long arms, and mature males develop prominent cheek pads; males can reach about 1.3 m and 130 kg.
- **Diet:** Primarily frugivorous, feeding on fruits such as figs and lychees, along with leaves, nuts, bark and insects; they can obtain water from tree holes.
- **Behaviour & Intelligence:** Highly solitary, though temporary groups may form when food is abundant; they are highly intelligent and share about 96.4% genetic similarity with humans.
- **Reproduction & Lifespan:** Females give birth only once every 5–10 years, resulting in a low reproductive rate; orangutans can live up to about 50 years in the wild.
- **India Context**: Their natural range does not extend to India, making reported sightings such as the Balasore, Odisha discovery unusual and requiring verification of their origin.

Quick Bites:

❖ The world's scientific, policy and farming communities working on drylands will convene three-day Global Dryland Congress 2026, themed 'Transforming Dryland Agriculture with South–South Cooperation', in New Delhi from 10–12 September 2026. Jointly organised by the Indian Council of Agricultural Research (ICAR) and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the Congress will be held at the National Agricultural Science Complex and doubles as a milestone celebration of 50 years of ICAR–ICRISAT partnership.

❖ National Industrial Corridor Development Corporation Limited (NICDC), under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, Government of India, participated in the first-ever INNOPROM India 2026, being held from 9–11 September 2026 at Bharat Mandapam, New Delhi. The inaugural edition of INNOPROM in India provides an important platform for advancing the India–Russia Special and Privileged Strategic Partnership, bringing together Government representatives, manufacturers, technology companies, investors and industry organisations from both countries.

❖ The Centre for Marine Living Resources and Ecology (CMLRE), operating under the Ministry of Earth Sciences (MoES), Government of India, has officially commenced the five-day "Deep-sea Macrofauna Taxonomy School: Standardizing Methodologies for Biodiversity Assessments" in Kochi. Running from

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September 07–11, 2026, the prestigious capacity-building initiative is organized under the Sustainable Seabed Knowledge Initiative (SSKI) platform of the International Seabed Authority (ISA).

- The Unique Identification Authority of India (UIDAI) on Wednesday launched the Aadhaar Face Authentication SDK (Software Development Kit) and Aadhaar Face Authentication Sandbox at the Global Fintech Fest 2026, enabling ecosystem partners to integrate, test and deploy Aadhaar Face Authentication more seamlessly within their digital applications.
- National Fluorosis Day 2016/2026 is observed on September 9, and in 2026, the Union Ministry of Health and Family Welfare marked the occasion by organizing a National Multi-Stakeholder Workshop on Fluorosis in New Delhi to evaluate and expand the National Programme for Prevention and Control of Fluorosis (NPPCF)
- India is set to expand its global skills footprint with first-time participation in eleven new skill categories at the 48th WorldSkills Competition, to be held in Shanghai, China, from 22 to 27 September 2026. Team Skill India will participate in 63 out of 64 skills, with a contingent of nearly 70 competitors, making it one of India's largest and most diverse representations at WorldSkills to date. The eleven new skills in which India will compete for the first time are Dental Prosthetics, Digital Interactive Media Design, Intelligent Security Technology, Landscape Gardening, Optoelectronic Technology, Retail Sales, Unmanned Aerial Systems, Industrial Mechanics, Software Testing and Heavy Vehicle Technology, Aircraft Maintenance.
- Researchers discovered Buellia maharajensis, a new saxicolous lichen species, in Mathikettan Shola National Park, Kerala, at about 1,351 m elevation. It is the fourth lichen species recorded from the park. Lichens are a symbiotic association between a fungus and an alga or cyanobacterium, where both partners benefit through nutrient exchange.
- Saqqara is an ancient Egyptian necropolis forming part of the ruins of Memphis, located about 24 km southwest of Cairo. It stretches for around 8 km along the desert plateau and contains numerous pyramids, tombs, mastabas, temples and funerary monuments. Along with the Memphis-area sites including Abu Sir, Dahshur, Abu Ruwaysh and the Pyramids of Giza, it was designated a UNESCO World Heritage Site in 1979.

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- India and Morocco held the inaugural meeting of their Joint Defence Committee (JDC) in New Delhi on 8 September 2026. The meeting created a formal bilateral mechanism for defence cooperation between the two countries under a Defence Cooperation Memorandum of Understanding signed in September 2025.
- India won two gold medals and one silver medal on the penultimate day of the World Archery Para Series Stage III at Ahmedabad in Gujarat on 8 September 2026. The results came in compound, recurve, and mixed team events in para archery, which is governed internationally by World Archery.
- The 2026 Pickleball World Cup was held in Da Nang, Vietnam, from 30 August 2026, and India finished fourth in the overall medal standings with 41 medals. The Indian tally included seven gold, 17 silver, and 17 bronze medals, and the result marked an improvement from India's seventh-place finish at the previous World Cup.
- Tripura recorded a zero per cent dropout rate at the primary school level, covering Classes 1 to 5, in the 2025-26 academic year. The state government linked the figure to UDISE+ data and placed the primary dropout rate at 2.21 per cent in 2013-14 before it reached zero in 2025-26.
- Google DeepMind launched the AlphaGenome Atlas on 8 September 2026 as an open-access database for human DNA analysis. The resource contains 1 petabyte of precomputed artificial intelligence predictions for all 9 billion possible single-letter mutations in human DNA.
- Akasa Air operated its first commercial flight with conventional aviation turbine fuel blended with 1% Sustainable Aviation Fuel (SAF) on 8 September 2026. The SAF blend was supplied by Bharat Petroleum Corporation Limited (BPCL), a public sector undertaking in India. The flight operated between Mumbai and Goa on the same day.
- Princess Elisabeth Island in Belgium is the world's first artificial energy island, being constructed in the North Sea about 45 km off the Belgian coast. Covering around 5 hectares, it will serve as an offshore energy hub connecting offshore wind farms to Belgium's onshore electricity grid through submarine cables.
- India secured six medals on the concluding day of the World Archery Para Series in Ahmedabad on Wednesday. The host finished second with its tally of four gold, three silver and eight bronze, behind Czechia, which topped the table with five gold.
- North Korea has built a new uranium enrichment facility at its main Yongbyon nuclear complex, and started operating an expanded annex at its Kangson enrichment site, the nuclear watchdog International Atomic

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Energy Agency(IAEA) said. The IAEA said the developments in North Korea's nuclear programme violated UN Security Council resolutions.

- India's Lohum said on Wednesday it had dispatched its first shipment of lithium ore from Zimbabwe, marking the start of its mining operations in the southern African country and making it the first domestic company to produce lithium from overseas assets.

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11-09-2026

1. Bakhira Lake:

Context: A new study that measured magnetic minerals accumulated in sediments below the Bakhira Lake in Sant Kabir Nagar over 25000 years helped track past changes in climate and how they have influenced rainfall, weathering, sediment transport and lake processes in northern India. It can pave way for improved climate models to predict future monsoon behaviour and can help better water resource management in the Central Ganga Plain (CGP) of which the Bakhira Lake is a part.

About Bakhira Lake:

- Bakhira Lake is located in the Ghaghara–Rapti alluvial system and represents a perennial oxbow/floodplain wetland formed through the migration and subsequent cut-off of the Rapti River.
- One of the largest wetlands in Uttar Pradesh, it was designated as a Ramsar Site in 2022.
- Its floodplain–lacustrine setting favours the accumulation and preservation of sediments derived from both the lake and surrounding catchment, making it sensitive to changes in monsoon-driven runoff, sediment transport and weathering.
- The Bakhira Bird Sanctuary is the largest natural flood plain wetland of India in Sant Kabir Nagar district of Eastern Uttar Pradesh.
- The sanctuary is named after the village Bakhira located adjacent to the lake.

2. BRICS:

Context: Under its 2026 Presidency, India is set to host the 18th BRICS Summit in New Delhi on 12–13 September 2026. It will mark India's fourth Chairship of BRICS in 2026. India's Chairship is guided by the theme "Building for Resilience, Innovation, Cooperation and Sustainability."

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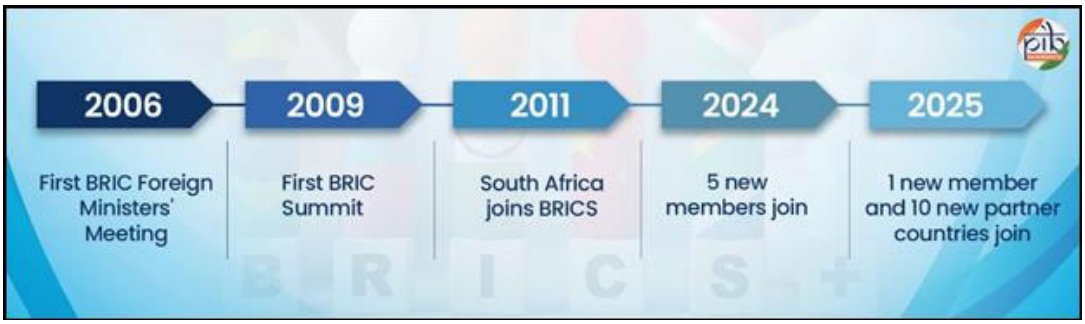
About BRICS:

- BRICS is a grouping of major emerging economies: Brazil, Russia, India, China and South Africa.
- The term BRIC was coined in 2001 by Goldman Sachs economist Jim O'Neill to describe Brazil, Russia, India and China as future major global economies.
- The grouping was formalised in 2006 through the first meeting of BRIC Foreign Ministers.
- The first BRIC Summit was held in 2009 at Yekaterinburg, Russia.
- South Africa joined in 2010, transforming BRIC into BRICS.
- At the 2023 Johannesburg Summit, six countries—Argentina, Egypt, Ethiopia, Iran, Saudi Arabia and UAE—were invited to join from January 2024; Argentina subsequently did not join.
- Indonesia became the 11th member in 2025, further expanding BRICS' geographical and economic reach.
- Current 11 members: Brazil, China, Egypt, Ethiopia, India, Indonesia, Iran, Russia, Saudi Arabia, South Africa and UAE.
- Collectively, BRICS represents about 49.5% of global population, 40% of global GDP and 26% of global trade, highlighting its significant demographic and economic weight.



3. Wildlife Crime Control Bureau (WCCB):

Context: The Ministry of Environment, Forest & Climate Change recently constituted a 4-member inquiry team from WCCB to investigate the international organized crime linkage in the mysterious appearance of orangutan in the Balasore district.

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About Wildlife Crime Control Bureau (WCCB):

- WCCB is a statutory body established to combat organised wildlife crime in India.
- It was constituted under Section 38Y of the Wild Life (Protection) Act, 1972 and became operational in 2008.
- It functions under the Ministry of Environment, Forest and Climate Change (MoEFCC) and is headquartered in New Delhi.
- It is a multidisciplinary body comprising officials from Police, Forest, Customs, intelligence and enforcement agencies.
- It has five regional offices at Delhi, Kolkata, Mumbai, Chennai and Bhopal.
- It collects and shares intelligence, coordinates enforcement agencies and maintains a centralised wildlife crime database.
- It helps implement India's obligations under international frameworks such as CITES, and coordinates with INTERPOL and the World Customs Organization against cross-border wildlife trafficking.
- It also undertakes capacity building, training, scientific investigation and species identification, assists in prosecutions, and advises the Government on wildlife crime policy and legal measures.

4. CE20 cryogenic engine:

Context: The Indian Space Research Organisation (ISRO) conducted a flight acceptance hot test of the indigenous CE20 cryogenic engine at an uprated thrust level of 220 kN on 9 September 2026. The test took place at the ISRO Propulsion Complex in Mahendragiri, Tamil Nadu, and the engine is linked to the upgraded C32 upper stage of an upcoming LVM3 mission

About CE20 cryogenic engine:

- The study of the production and behaviour of materials at extremely low temperatures (below -150 degrees Celsius) to lift and place heavier objects in space is known as cryogenics.
- Cryogenic gases are used as fuel, and liquid helium is used to cool detectors in space, allowing them to take highly accurate measurements.
- Cryogenic liquids are liquids that have a normal boiling point below –130°F.

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- These include nitrogen, hydrogen, oxygen, helium, and argon.
- These are the gases that have been liquefied and stored at extremely low temperatures.
- A cryogenic engine, also known as a cryogenic stage, is the final stage of a space launch vehicle that uses cryogenics.
- Cryogenic engine makes use of Liquid Oxygen (LOX) and Liquid Hydrogen (LH_2) as propellants which liquefy at -183 deg C and -253 deg C respectively.
- A cryogenic engine provides more force with each kilogram of cryogenic propellant it uses compared to other propellants.
- CE-20 is an indigenously developed cryogenic rocket engine by ISRO for India's GSLV Mk III/LVM3 launch vehicle.
- It uses Liquid Hydrogen (LH_2) as fuel and Liquid Oxygen (LOX) as oxidiser.
- It follows the Gas Generator cycle and uses a cryogenic combustion system for high efficiency.
- It develops about 200 kN thrust at sea level and is used as the upper-stage engine of LVM3.
- CE-20 is crucial for launching heavy payloads to Geostationary Transfer Orbit (GTO) and represents a major achievement in India's cryogenic propulsion technology.

5. Article 371(K):

Context: The Ministry of Home Affairs (MHA) has proposed inserting a new constitutional provision, Article 371(K) (or Chapter K under Part XXI), to establish a directly elected governing body with legislative powers for the Union Territory of Ladakh.

About Article 371(K):

- **Nature:** Proposed constitutional amendment under Part XXI to create a sui generis governance model for Ladakh without granting it full statehood.
- **Background:** After the J&K Reorganisation Act, 2019, Ladakh became a UT without a legislature, resulting in greater bureaucratic/LG control and reduced role for elected institutions.
- **Demand:** Leh Apex Body (LAB) and Kargil Democratic Alliance (KDA) have sought stronger democratic representation, tribal safeguards, land protection and greater political autonomy.

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- **Elected Body:** Proposes a directly elected UT-level legislative body with authority over specified subjects.
- **Key Subjects:** Legislative powers would cover land, property transfer, culture, language, forests, environment and natural resources.
- **Constitutional Safeguards:** Draws from Articles 371A and 371G, requiring local legislative assent for the application of certain central laws affecting land and customary practices.
- **Article 240:** Provides local legislative concurrence in areas otherwise subject to Presidential regulations for Union Territories.
- **Pending Issues:** Financial autonomy, budgetary powers, executive authority, police and public order remain unresolved; the broader aim is democratic governance while protecting Ladakh's tribal rights, ecology and cultural identity.

Quick Bites:

- The first International Space Summit was held in Paris at the Grand Palais on September 9–10, 2026, under the leadership of French President Emmanuel Macron, with special envoys Thomas Pesquet and Hélène Huby; it brought together nearly 120 international delegations and 2,000 participants, with 51 announcements and a headline €20 billion investment focus, covering European strategic autonomy, defence, the space economy and a new European ISS crew.
- The Ninth ASEAN-India Ministerial Meeting on Agriculture and Forestry (9th AIMMAF) was held on 9 September 2026 in New Delhi, India. 9th ASEAN–India Ministerial Meeting Reaffirms Commitment to Food Security, Sustainable Agriculture and Resilient Value Chains
- As part of the Indian Navy's Operational Deployment, INS Mysore arrived at Lumut, Malaysia, on 09 Sep 2026 to participate in the 4th edition of bilateral maritime exercise 'Samudra Laksamana' between the Indian Navy and the Royal Malaysian Navy. Exercise Samudra Laksamana comprises of professional engagements in harbour and at sea, including cross-deck visits, operational interactions and sporting engagements.
- Narcolepsy is a rare, lifelong neurological sleep disorder in which the brain has difficulty regulating sleep–wake cycles, causing excessive daytime sleepiness and sudden, uncontrollable sleep attacks that can occur

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even during routine activities; although it can significantly affect work, study and daily life, it is a manageable condition.

- The United States Navy selected the VAMPIRE counter-unmanned system for coastal and littoral defence on 8 September 2026. VAMPIRE stands for Vehicle-Agnostic Modular Palletized ISR Rocket Equipment and is developed by L3Harris Technologies, a defence company headquartered in Melbourne, Florida.
- India's nuclear arsenal has been estimated at 190 warheads in 2026 by two major international assessments, the Federation of American Scientists and the Stockholm International Peace Research Institute. Both assessments placed India's stockpile at the same figure, with SIPRI estimating 190 warheads as of January 2026 and FAS giving a similar count in its 2026 study.
- The 22nd edition of Yudh Abhyas, the annual India-US bilateral military exercise, is scheduled from 9 September to 28 September 2026. The exercise is being conducted in a two-theatre format across Bikaner in Rajasthan and Auli in Uttarakhand.
- Yemen's Houthis seized control of the strategic Red Sea port city of Mokha on Thursday, a Yemeni military source said, as the group reported new strikes by Saudi forces. The Iran-backed Houthis, who control large parts of northwest Yemen, launched a large-scale offensive last week against Yemeni government forces, who are backed by Saudi Arabia.
- The recent auction and award of the Tara coal block in Chhattisgarh's Hasdeo-Aranya forest to an Adani Group subsidiary has triggered a major political and environmental controversy. The Tara coal block is a major, highly contested coal mining area located in the biodiverse Hasdeo-Aranya region of Chhattisgarh's Surajpur district.
- **Kalinga Ratna Award 2026:** Former CJI Justice Dipak Misra was conferred the Kalinga Ratna Award 2026 by Sarala Sahitya Sansad, Cuttack. It is an annual state-level civilian honour recognising eminent personalities from Odisha for exceptional contributions at the national or international level. The award honours lifetime achievements in fields such as jurisprudence, public administration, literature, social activism and public service, while promoting Odisha's literary and cultural heritage.

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12-09-2026

1. Pradhan Mantri Kisan Maandhan Yojana:

Context: 7 Years of Pradhan Mantri Kisan Maandhan Yojana. Pradhan Mantri Kisan Maandhan Yojana (PM-KMY) was launched on 12th September 2019. The scheme offers eligible landholding Small and Marginal Farmers (SMFs), both male and female, the assurance of a steady monthly pension from the age of 60. The intervention seeks to ensure their golden years are met with stability and peace of mind.

About Pradhan Mantri Kisan Maandhan Yojana:

- PM-KMY is a Central Sector Scheme administered by the Department of Agriculture & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, in partnership with LIC.
- It is a voluntary and contributory old-age pension scheme for Small and Marginal Farmers (SMFs).
- Eligible subscribers receive a minimum assured pension of ₹3,000 per month after attaining 60 years.
- **Family pension:** After the subscriber's death, the spouse receives 50% of the pension = ₹1,500/month, provided the spouse is not already a PM-KMY beneficiary.
- If the subscriber dies before 60, the spouse can either continue the scheme by paying regular contributions or exit according to scheme provisions.
- **Eligibility:** Small and marginal farmers with cultivable landholding up to 2 hectares, aged 18–40 years, with names in State/UT land records as on 1 August 2019, subject to exclusion criteria.
- **Contribution:** Farmer and Central Government contribute equally; the farmer contributes ₹55–₹200 per month, depending on the age of entry.
- **PM-KISAN linkage:** Eligible farmers can use their PM-KISAN benefits for voluntary PM-KMY contributions through an enrolment-cum-auto-debit mandate.

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2. Nandankanan Zoological Park:

Context: Nandankanan Zoological Park recently introduced musical therapy for the five abandoned baby orangutans to help them cope with stress.

About Nandankanan Zoological Park:

- **Location:** Nandankanan Zoological Park, meaning "Garden of Heaven," is located on the banks of Kanjia Lake at Barang, about 20 km from Bhubaneswar, Odisha.
- **Natural setting:** Unlike most Indian zoos, it is situated within the Chandaka Forest, a moist deciduous forest with semi-evergreen characteristics.
- **Features:** The complex includes a zoological park, botanical garden and a sanctuary area.
- **International recognition:** It was the first zoo in India to become a member of the World Association of Zoos & Aquariums (WAZA).
- **Breeding success:** It has successfully bred several endangered species, including tigers, Asiatic lions, lion-tailed macaques, Indian pangolins, gharials and brow-antlered deer.
- **Unique achievement:** It is the first zoo in the world to breed both melanistic (black) and white tigers.
- **Pangolin conservation:** Nandankanan is the sole conservation breeding centre for Indian pangolins in the world.
- **Other firsts:** It was the first Indian zoo with an open-top leopard enclosure, the first where ratels were bred in captivity, and among the pioneers in captive breeding of gharials.

3. International Literacy Prizes:

Context: Recently, UNESCO presented the 2026 International Literacy Prizes during the International Literacy Day global function ceremony held in the state of Chiapas, Mexico.

About International Literacy Prizes:

- UNESCO International Literacy Prizes have been awarded since 1967 to promote literacy as a foundation for lifelong learning, equity and sustainable development.

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- **Eligibility:** Individuals, NGOs and government bodies promoting literacy can apply, provided their programmes show measurable impact and align with the annual theme.
- **2026 theme:** International Literacy Day 2026 was observed with the theme "Literacy for people, the planet, and prosperity."
- **The Prizes comprise six annual awards under two categories:** UNESCO King Sejong Literacy Prize (3) and UNESCO Confucius Prize for Literacy (3).
- **King Sejong** Prize: Supported by South Korea since 1989, it recognises mother-tongue and multilingual literacy initiatives; each laureate receives a medal, diploma and US$30,000.
- **Confucius Prize:** Supported by China since 2005, it recognises programmes promoting functional literacy in rural areas and among out-of-school youth, particularly through technology.
- **Award amount:** Each laureate of both Prizes receives US$30,000, a medal and a diploma.

4. Gooty Fort:

Context: After review, the Union Ministry of Communications and Department of Posts recently forwarded the proposal for a commemorative postage stamp on Gooty Fort to the Union Minister of Communications for final approval.

About Gooty Fort:

- **Location:** Gooty Fort, also known as Ravadurg or Gutti Kota, is an ancient hilltop fort located at Gooty in Anantapur district, Andhra Pradesh.
- **Chalukya period:** Inscriptions indicate its association with Western Chalukya king Vikramaditya VI (Tribhuvanamalla), 1076–1126 CE.
- **Chola–Chalukya conflict:** It witnessed a major battle when the Cholas under Vira Rajendra besieged the fort; the defenders successfully repelled them.
- **Vijayanagara period:** The fort later came under the Vijayanagara Empire and was associated with Krishnadevaraya.
- **Successive rulers:** It subsequently passed to the Qutb Shahis, Mughals, Marathas and Mysore, before finally coming under the British East India Company.

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- **Maratha–Mysore episode:** Murari Rao strengthened the fort in the 18th century, but Hyder Ali forced its surrender after its water supplies ran out.
- **Architecture:** The fort represents a blend of Hindu and Islamic architectural styles, mainly constructed using granite, stone, mortar and lime.
- **Fort structure:** Built in a shell-like shape, it consists of 15 interconnected smaller forts, with multiple gateways and an outer wall strengthened by bastions.
- **Important features:** It contains wells, a gymnasium, barracks and Morari Rao's Seat, a polished limestone pavilion located on the cliff edge.
- **Religious structures:** The fort has several temples, including Lakshmi Narasimha, Nageswara Swami, Hanuman, Jyothimma and Ramaswamy temples, along with a Dargah and several ruined structures.

5. Digital Bharat Nidhi (DBN):

Context: Recently, Digital Bharat Nidhi (DBN) under Department of Telecommunications (DoT) signed an Agreement for implementation of the Amended BharatNet Program (ABP) in the State under the State-led model today at Sanchar Bhawan, New Delhi

About Digital Bharat Nidhi (DBN):

- Digital Bharat Nidhi (DBN) was formerly known as the Universal Service Obligation Fund (USOF) and now operates under the Telecommunications Act, 2023.
- It is an attached office of the Department of Telecommunications (DoT), Ministry of Communications.
- **Mandate:** Promote universal access to telecommunication services in underserved rural, remote and urban areas.
- **Objectives:** Support R&D, pilot projects, consultancy/advisory assistance, and introduction of new telecommunication services, technologies and products.
- **Funding:** Telecom companies' contributions are first credited to the Consolidated Fund of India (CFI); the DBN balance does not lapse at the end of the financial year.
- DBN funds are used for telecom access in underserved areas and for research and development of telecom technologies and products.

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- **Administration:** A Central Government-appointed Administrator manages DBN and selects DBN implementers through bidding or applications from eligible persons.

6. Thirukkural:

Context: Ahead of the BRICS summit in New Delhi (September 12-13), Prime Minister Narendra Modi gifted Russian President Vladimir Putin a translated version of the traditional Tamil text Thirukkural during their bilateral meeting on Friday.

About Thirukkural:

- Thirukkural is a seminal work of ancient Tamil literature and philosophy, authored by the poet-philosopher Thiruvalluvar (Valluvar).
- It contains 1,330 couplets, arranged into 133 chapters, with 10 couplets per chapter; each kural consists of seven words.
- It is divided into three books: Aram (Virtue/Dharma) – 38 chapters; Porul (Polity/material & socio-economic values) – 70; Inbam (Love) – 25.
- The text emphasises ethics, morality, compassion, charity, spirituality and love, while rejecting divisions based on caste, religion, creed and race.
- Its first chapter, Kadavul Vazhthu (Praise of God), presents God as pure intelligence, embodying wisdom, compassion, morality and love.
- Love (Inbam) is discussed through Kalaviyal (pre-marital love) and Karpiyal (marital love), portraying love as a source of joy and emotional fulfilment.
- Thiruvalluvar links education, wisdom and virtue, considering proper education essential for virtuous living.
- **Global influence:** First published in English in 1840, the work has since been translated into 60+ languages; George Uglow Pope called Thiruvalluvar the "Bard of Universal Man."

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Mains specific articles:

1. ISRO's 'privatisation' move: What India's space policy says: (GS paper 3)

- **IN-SPACe:** Indian National Space Promotion and Authorisation Centre is an autonomous nodal agency under the Department of Space, acting as an interface between ISRO and non-governmental entities (NGEs).
- **ISRO's changing role:** Under Indian Space Policy 2023, ISRO is to focus on R&D, new technologies, advanced missions and human spaceflight, while gradually moving away from manufacturing operational space systems.
- **IN-SPACe role:** Promote and authorise private space activities, facilitate technology transfer, testing facilities, launch pads, satellites, ground stations and orbital resources, and build industry–academia linkages.
- **NSIL:** ISRO's commercial arm/PSU under the Department of Space, responsible mainly for commercialising space technologies and providing commercial launch services.
- **Private sector:** NGEs can undertake end-to-end space activities, including satellites, launch services, ground infrastructure, communication, remote sensing and navigation.
- **SSLV:** Operationalised in 2024 after three development flights; technology transferred to HAL for end-to-end production. It is designed for quick, low-cost assembly and commercial launches.
- **PSLV:** Commercialisation began in 2022, with manufacturing of five PSLVs awarded to a HAL–L&T consortium; further technology transfer to industry is being pursued.
- **LVM3:** Commercialisation process is underway; the latest plan envisages industry support until 42 months or at least two vehicles are realised, after which industry can develop its own market.
- **Kulsekarapattinam spaceport:** IN-SPACe has sought private participation in operating the upcoming Satellite Launch Complex in Tamil Nadu; ISRO will provide technical support and training initially.
- **Other transfers:** ISRO has also transferred technologies related to launch vehicles, satellites and various spacecraft subsystems to industry.
- Why privatisation of routine activities? To expand India's commercial space ecosystem, improve cost-effective and reliable launch services and increase India's share in the global space economy.

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- **Economic target:** India's space sector is targeted to grow from about $9 billion (2026) to $40–45 billion over the next decade.
- **Private investment:** Investment in India's private space sector increased about six-fold, from $100.5 million (2021–22) to $618.5 million by March 2026.
- **Important distinction:** The reforms aim at commercialisation/transfer of routine civilian activities, not privatisation of ISRO itself; ISRO retains strategic, scientific and advanced technological responsibilities.
- **Concern:** Experts stress the need to preserve ISRO's in-house expertise, particularly for strategic requirements and complex missions, as the private sector is still relatively nascent.
- **Future missions:** ISRO will continue major programmes such as Gaganyaan, Chandrayaan-4/5 and the Bharatiya Antariksh Station, requiring strong in-house technological capabilities.

Quick Bites:

❖ Union Minister of Power and Housing & Urban Affairs Shri Manohar Lal will participate in the G20 Energy Ministerial Meeting to be held in the Houston, United States of America from 14–16 September 2026. The meeting, hosted under the U.S. G20 Presidency, will bring together Energy Ministers and senior representatives from G20 members to deliberate on key issues concerning global energy security, affordability, infrastructure development and resilient energy supply chains.

❖ Google's AlphaGenome Atlas is an AI-powered, high-resolution digital directory that predicts the effects of genetic variants on molecular biology. It maps the predicted impact of all ~9 billion DNA variants and provides an AlphaGenome Variant Impact (AVI) score for each variant. The 1-petabyte dataset covers both coding and non-coding DNA variations and can be accessed through a web browser without coding, with free access for academic researchers.

❖ Dhruva Space, an India-based space technology company, and Safran Space, a French aerospace firm, signed multiple contracts at the inaugural International Space Summit in Paris on 10 September 2026. The contracts were valued at more than €5 million and covered satellite communication systems, inertial navigation units, optical payloads, and ground stations.

❖ The second Emerging Science, Technology, and Innovation Conclave (ESTIC 2026) is scheduled to be held at Bharat Mandapam, New Delhi, from October 27 to 29, 2026.

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- IIT-Ropar and the Army Air Defence College, Gopalpur, signed a Memorandum of Agreement on 10 September 2026 for an MTech degree programme in Defence Technology for Indian Army officers. The agreement provides academic accreditation for officers undergoing the Long Air Defence Course at Gopalpur and links military training with formal postgraduate study.
- India has crossed 80 lakh Human Papillomavirus vaccine doses under the National HPV Vaccination Campaign. The campaign targets adolescent girls aged 14 and uses the single-dose Gardasil-4 vaccine in government health facilities across the country. Human Papillomavirus is a group of viruses linked to cervical cancer and other cancers. Gardasil-4 is a quadrivalent HPV vaccine used in immunisation programmes.
- For the first time in India, Mysuru will host L'Étape Mysuru by Tour de France, the country's inaugural edition of the official amateur cycling series, on October 4. The event is being organised by NEB Sports in association with the Department of Youth Empowerment and Sports and Karnataka Tourism, in partnership with the Amaury Sport Organisation (ASO), the organisers of the Tour de France.
- Delegates and foreign guests attending the BRICS Summit will get an opportunity to savour the authentic, traditional flavours of Bihar. Sattu and makhana are expected to play a significant role in establishing 'Brand Bihar' at the global level.
- India's 37 deep-tech innovations are being showcased at the 'Bharat Innovates Exposition' at Bharat Mandapam here from September 11 to 12 on the sidelines of the BRICS summit.

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13-09-2026

1. Colombo Security Conclave (CSC):

Context: The three-day Table Top Exercise (TTX) conducted under the aegis of the Colombo Security Conclave (CSC) successfully culminated on 11 Sep 2026 at Eastern Naval Command (ENC), Visakhapatnam. The exercise commenced on 09 Sep 2026 with the opening address by RAdm Manoj Jha, Chief Staff Officer (Operations), Eastern Naval Command, focused on developing a 'Coordinated Response to Illicit Maritime Activities in the Indian Ocean Region (IOR).'

About Colombo Security Conclave (CSC):

- It is a regional security group focused on the Indian Ocean Region.
- It was formed in 2011 as a trilateral maritime security grouping of India, Sri Lanka and the Maldives. Later joined by Mauritius.
- It was Rebranded as the CSC in 2020.
- It focuses on maritime security, counter-terrorism, and cybersecurity.
- It is seen as a response to China's growing influence in the Indian Ocean.
- It plays an active role in maintaining regional security and facilitating cooperation between member states
- Seychelles is an observer country.

2. Steel Slag Road Technology:

Context: Dr Jitendra Singh conferred the Guinness World Record for the "World's Longest Road Built with Processed Steel Slag Aggregates" on a 1.85-km road in Raigarh, Chhattisgarh, developed by CSIR-CRRI and Jindal Steel Limited. The project demonstrates the indigenous use of processed steel slag, a by-product of steel production, as road aggregates, promoting waste-to-wealth, circular economy and sustainable infrastructure. The event also featured the road's virtual inauguration, release of a scientific documentary, signing of a Technology Transfer Agreement, launch of the "Steel Grit" brand and recognition of the project team.

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About Steel Slag Road Technology:

- Steel slag is an industrial byproduct generated during steel manufacturing.
- It is produced in large quantities in electric arc furnaces and basic oxygen furnaces.
- It mainly contains silicates and oxides of calcium, magnesium, manganese, and aluminium.
- The cooling process determines the type and properties of slag for various uses.
- Steel Slag Road Technology uses processed steel slag as aggregate in road base and sub-base layers.
- Impurities and residual metal are removed before its use in construction.
- It provides high strength, hardness, abrasion resistance, skid resistance, and good drainage.
- It enables large-scale utilization of steel waste, reducing environmental concerns.
- It helps manage around 19 million tonnes of steel slag generated annually in India.
- Roads built with steel slag are more durable and robust than those using conventional materials.

3. Solani river

Context: The Uttar Pradesh government submitted a report to National Green Tribunal(NGT) on the floodplain demarcation of the Solani river using a one-metre digital elevation model and a 100-year return period.

About Solani river:

- **Origin:** Solani River originates in the Himalayan foothills near Dehradun, Uttarakhand.
- **Course:** It flows through Saharanpur and Muzaffarnagar districts of Uttar Pradesh and joins the Banganga River upstream of Shukratal.
- **Elevation & basin:** The river is located at about 214 m above sea level; its basin receives 1,170–1,500 mm annual rainfall.
- **Soils:** The catchment is predominantly covered by loamy soils.
- **Major landmark:** The Solani Aqueduct near Roorkee, a historic 19th-century masonry structure, carries the Upper Ganga Canal over the Solani River.

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4. New Delhi Declaration:

Context: India forged a consensus of BRICS countries on Saturday, after Iran and the United Arab Emirates agreed to a last-minute compromise on the language used about the war in West Asia, allowing the 11-member grouping to adopt the New Delhi Declaration at a meeting chaired by Prime Minister Narendra Modi.

About New Delhi Declaration:

- **West Asia conflict:** Called for "maximum restraint" and avoided directly naming the U.S.–Israel attacks on Iran or Iran's strikes on Persian Gulf neighbours.
- **Gaza:** Strongly criticised Israel's bombardment of Gaza, supported South Africa's case against Israel in international courts and called for humanitarian aid.
- **Civilian protection:** Expressed deep concern over attacks on civilians, civilian infrastructure and nuclear facilities in West Asia.
- **UN reforms:** Called for comprehensive reform of the United Nations, including a greater role for India and Brazil in the UN Security Council.
- **BRICS identity:** PM Modi emphasised that BRICS has a distinct identity and is not directed against any country, stressing consensus and inclusiveness.
- **BRICS Troika:** India proposed a Troika mechanism, involving outgoing, current and incoming presidencies, to ensure continuity in BRICS deliberations.
- **India's initiatives:** Proposed a global governance reform roadmap, seafarer distress network, and BRICS Global South mechanism for skill development in new technologies.
- **Other conflicts:** Declaration criticised the U.S. blockade of Cuba and expressed concern over violence in Sudan.
- **Consensus approach:** The declaration reflected a compromise among members, using non-specific language on the Iran–UAE conflict after extensive negotiations; China will assume the BRICS presidency for the next year.

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5. Acharya Vinoba Bhave:

Context: Prime Minister of India paid homage to eminent freedom fighter, philosopher, and social reformer Acharya Vinoba Bhave on his birth anniversary (Jayanti).

About Acharya Vinoba Bhave:

- Who he was: Vinayak Narahari Bhave (1895–1982), renowned philosopher, educationist, scholar and social reformer; regarded as Gandhi's spiritual successor and advocate of Ahimsa, Sarvodaya and land reforms.
- Early life: Born at Gagode, Maharashtra; influenced by his mother's spirituality and father's rational outlook; adopted Brahmacharya early in life.
- Meeting with Gandhi: Left formal education in 1916 and met Mahatma Gandhi at Ahmedabad, subsequently dedicating his life to Gandhi's constructive programmes; Gandhi gave him the name 'Vinoba'.
- Constructive work: Led the Wardha Satyagraha Ashram from 1921 and promoted village sanitation, Nai Talim, Khadi and rural development; founded Gram Seva Mandal.
- Freedom movement: Participated in the Nagpur Flag Satyagraha, Salt Satyagraha and Civil Disobedience Movement, facing imprisonment several times.
- First Individual Satyagrahi: Chosen by Gandhi as the first Individual Satyagrahi in 1940 against British involvement in World War II; Jawaharlal Nehru was the second.
- Literary contribution: Authored Geetai, a Marathi verse rendering of the Bhagavad Gita, and Gita Pravachane, based on his prison lectures; also wrote several philosophical works.
- Philosophy: Promoted Sarvodaya, non-violence, self-rule and moral-spiritual development, and sought to harmonise ethical teachings across Hinduism, Christianity, Islam and Buddhism.

6. Ramanthswamy temple:

Context: At the 2026 BRICS Summit, Prime Minister Narendra Modi and Chinese President Xi Jinping were seen shaking hands in front of a high-quality projection of the 1,212-pillar corridor from Tamil Nadu's Ramanathswamy temple in Ramanathapuram district.

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About Ramanthswamy temple:

- **Location:** Located at Rameswaram on Pamban Island, Tamil Nadu; traditionally associated with one of the 12 Jyotirlingas of Shiva.
- **Historical development:** Though the present structure was largely rebuilt in the 17th century, the temple's history is considered much older.
- **Religious tradition:** According to tradition, Lord Rama worshipped Shiva at Rameswaram after returning from Lanka.
- **Sethupathi rulers:** The Sethupathi rulers of Ramanathapuram played an important role in shaping the temple's present architecture.
- **Famous corridor:** The third and outermost corridor, largely attributed to Muthuramalinga Sethupathi, is the temple's most remarkable architectural feature.
- **Dimensions:** The corridor has 1,212 pillars, each about 6.9 m high; the combined temple corridors extend to roughly 3,850 feet (1.17 km).
- **Architecture:** Pillars stand on raised platforms supporting beams and the continuous roof; each pillar is individually decorated with floral motifs and mythical figures.
- **Visual effect:** The long parallel rows of pillars create a striking perspective effect, with the columns appearing progressively smaller as they converge toward a distant point.

Quick Bites:

❖ Marking two decades of BRICS, two Commemorative Postage Stamps were released on 12 September 2026 in the sidelines of the 18th BRICS Summit in New Delhi. The commemorative stamp, bearing the inscription "BRICS: Two Decades of Cooperation, 2006–2026", celebrates the evolution of BRICS as a valuable platform for dialogue and cooperation. The two stamps also capture the priorities of India's BRICS Chairship 2026 under the theme: "Building for Resilience, Innovation, Cooperation and Sustainability."

❖ Two Przewalski's horse (P-horse) foals were born at a reintroduction centre in central Kazakhstan, marking the first wild horses born on Kazakh soil in over 200 years. It is the only living wild relative of the domestic horse and is named after explorer Nikolai Przewalski. It is characterised by a stout body, large head, short

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legs, upright black mane and reddish-brown to cream coat, and historically inhabited the steppe grasslands of Russia, Kazakhstan, Mongolia and northern China.

- Russia has unveiled the S-71K Kovyor, an air-launched stand-off cruise missile designed primarily for the Su-57E fifth-generation fighter. It has a distinctive flattened, aircraft-like body with swept-back wings, inverted V-tails and a chin-mounted optical sensor. Powered by a turbojet and three internal fuel tanks, it has an estimated 300–350 km range and uses inertial navigation, reportedly without an advanced terminal seeker.
- Copper prices have recently reached a record high of $14,708 per tonne. Copper (Cu) is a naturally occurring metal known for its high electrical conductivity, malleability and corrosion resistance, and is 100% recyclable without quality loss. In India, major copper deposits occur in the Khetri–Jhunjhunu belt (Rajasthan), Malanjkhand (Madhya Pradesh) and Singhbhum (Jharkhand), while major global reserves are concentrated in Chile, Australia, Peru and Russia.
- U.S. federal health officials declared the largest recorded multistate cyclosporiasis outbreak over on 11 September 2026. The outbreak was linked to processed iceberg lettuce from Taylor Farms de Mexico, supplied from central Mexico, and it affected 12,883 infections across 21 states. Cyclosporiasis is an intestinal illness caused by the parasite Cyclospora cayetanensis. The infection spreads through contaminated food or water and commonly causes watery diarrhoea, loss of appetite, stomach cramps, nausea, and fatigue.
- India and the United States have expanded cooperation on undersea cable networks under the US-India TRUST (Transforming the Relationship Utilising Strategic Technologies) Initiative. The partnership focuses on strengthening secure and resilient subsea infrastructure, which carries over 95% of global digital traffic and supports international communications, financial services, cloud computing and the global digital economy.
- A healthy Badri female calf was born on 11 September 2026 through Ovum Pick-Up and In Vitro Fertilisation (OPU-IVF) technology at the Academic Dairy Farm of G.B. Pant University of Agriculture and Technology, Pantnagar. The Badri embryo was conceived in a laboratory and transferred into a Sahiwal cow as a surrogate mother. The work formed part of a three-year research programme involving ICAR-

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National Dairy Research Institute, Karnal, and G.B. Pant University of Agriculture and Technology, Pantnagar.

- Threatening to send energy prices even higher amid the war in West Asia, Saudi Arabia has shut down its 1,200-kilometre-long East-West pipeline after the vital oil conduit came under aerial attack. The kingdom said the attack originated in Iraq where Iran-backed militias operate. The pipeline, used by Riyadh as an alternative to the Strait of Hormuz, has been moving close to 5 million barrels of oil per day in recent months, amounting to 5% of global supply.
- BRICS leaders on Saturday called for stronger cooperation in disease surveillance and medical product regulation, welcoming the establishment of a dedicated sub-working group to advance an integrated early warning system for the prevention and response to mass infectious diseases.

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14-09-2026

1. Lumpy Skin Disease (LSD):

Context: The Department of Animal Husbandry and Dairying (DAHD), Government of India, today reviewed the Lumpy Skin Disease (LSD) situation in the National Capital Territory (NCT) of Delhi in coordination with the Delhi Animal Husbandry authorities. The review focused on the current disease situation, vaccination coverage, surveillance, treatment and strengthening of preventive and disease-control measures.

About Lumpy Skin Disease (LSD):

- **Cause:** Viral disease of cattle and water buffalo caused by Lumpy Skin Disease Virus (LSDV); mortality is generally <10%.
- **Origin:** First reported outbreak occurred in Zambia in 1929.
- **Transmission:** Mainly spread through blood-feeding vectors such as mosquitoes, flies and ticks.
- **Symptoms:** Fever, skin nodules/blisters, eye and nasal discharge, drooling, loss of appetite and reduced milk production.
- **Virus group:** LSDV belongs to the Capripoxvirus genus, along with goat pox and sheep pox viruses.
- **Vaccination:** India has used goat pox and sheep pox vaccines as heterologous vaccines providing cross-protection; Lumpi-ProVacInd, a live-attenuated vaccine developed by ICAR-NRC Equines and IVRI, is specifically developed against LSD.
- **Treatment:** No specific antiviral treatment is available; management is mainly supportive care, wound treatment and antibiotics to control secondary bacterial infections.

2. Piped Natural Gas (PNG):

Context: The Incentive Scheme for Promotion of Domestic PNG Connections seeks to accelerate the growth of active domestic PNG connections. It aims to enable households to access clean, safe and affordable cooking gas through piped supply. The Scheme provides incentives to CGD entities for

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converting unbilled connections into active, billed connections. It also incentivises the expansion of the PNG network into new areas. The Scheme will run in two tranches spread over six months.

About Piped Natural Gas (PNG):

- **Definition:** PNG is a safe, convenient and relatively cleaner fuel, mainly consisting of methane, used for domestic, commercial and industrial purposes.
- **Transmission:** Natural gas moves from production fields/import terminals through high-pressure trunk pipelines.
- **City Gas Distribution (CGD):** At City Gate Stations, pressure is reduced before gas enters the urban distribution network.
- **Local Network:** Gas is distributed through steel primary pipelines and polyethylene (PE) secondary pipelines across neighbourhoods.
- **Last-mile supply:** GI or copper pipes deliver gas directly to households, kitchens and industrial units.
- **Continuous & space-saving:** PNG provides 24×7 supply and eliminates the need to store or transport LPG cylinders.
- **Safety & efficiency:** Being lighter than air, leaked natural gas tends to disperse upward; metered supply also enables accurate billing and reduced handling losses.

3. South Asia Wildlife Enforcement Network (SAWEN):

Context: Recently, member countries of the South Asia Wildlife Enforcement Network (SAWEN) have adopted the "Kathmandu Declaration" to strengthen regional cooperation against illegal wildlife trade and related transnational organised crime.

About South Asia Wildlife Enforcement Network (SAWEN):

- **Nature:** SAWEN is an intergovernmental law-enforcement support body of South Asian countries, aimed at combating wildlife crime.
- **Members:** It comprises 8 countries — Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

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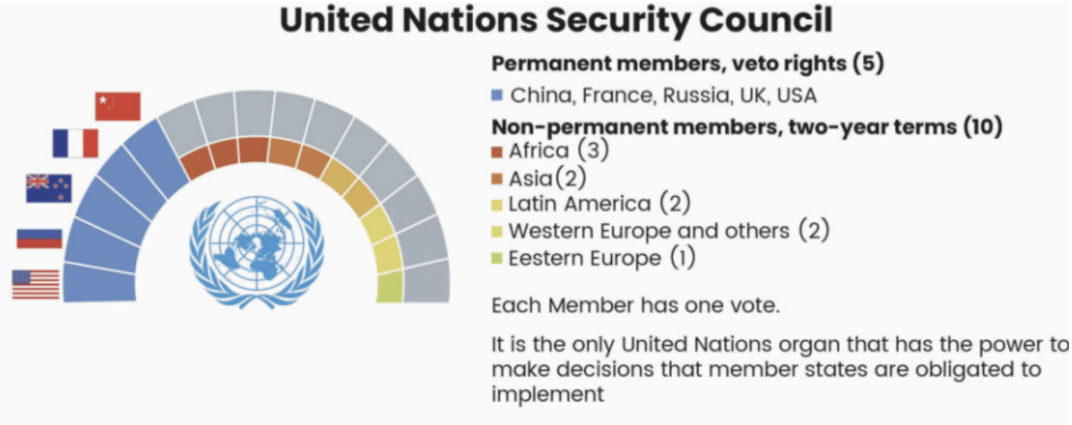
- **Establishment:** Launched in 2011 at Paro, Bhutan, with its Secretariat established in Kathmandu, Nepal.
- **Aim:** Promotes cooperation, coordination, collaboration, communication and capacity building against wildlife crime.
- **Key objectives:** Harmonise wildlife laws and policies, monitor poaching and illegal wildlife trade, strengthen institutional capacity and information sharing, and promote National Action Plans.
- **Governance:** General Assembly is the apex body; Executive Committee comprises national focal persons; the Secretariat, headed by a Secretary General, handles day-to-day activities.

4. United National Security Council (UNSC):

Context: Global superpowers haven't recognised that there are limits to their power, says United Nations Secretary-General Antonio Guterres in his most scathing comments about the culture of "impunity" and divisiveness that has "paralysed the Security Council". In an exclusive interview to The Hindu on the sidelines of the BRICS Summit, Mr. Guterres, who demits office at the end of the year, weighed in on a number of issues, including who should be the next Secretary-General.

About United National Security Council (UNSC):



- **Genesis:** Established in 1945 through the UN Charter as one of the 6 principal organs of the UN.
- **Purpose:** Maintaining international peace and security.
- **Members:** 5 permanent members (P5) and 10 non-permanent members.

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5. Uniform Civil Code (UCC):

Context: A Uniform Civil Code will be implemented by 2029 in the 21 States where the Bharatiya Janata Party and the NDA are in power, Union Home Minister Amit Shah said here on Sunday. He said the government was committed to deporting every illegal immigrant from the country.

About Uniform Civil Code (UCC):

- The Uniform Civil Code (UCC) refers to a single set of laws governing personal matters like marriage, divorce, adoption, inheritance, and succession for all citizens of India.
- It is mentioned in Article 44 of the Indian Constitution under the Directive Principles of State Policy, which directs the State to strive for a uniform civil code across India.
- Article 44 is not legally enforceable, meaning UCC is a guiding principle rather than a fundamental right.
- The idea of UCC originated in colonial India, initially aimed at legal uniformity while keeping Hindu and Muslim personal laws separate.
- The demand gained momentum in the early 20th century, especially from women reformers advocating equality and secularism.
- During the Constituent Assembly debates, leaders like B.R. Ambedkar supported UCC, but it was included as a non-binding Directive Principle as a compromise.
- After independence, India codified Hindu personal laws (1955–56), while Muslim, Christian, and other communities retained separate personal law systems.
- The Supreme Court revived the UCC debate in landmark cases like Shah Bano (1985), Sarla Mudgal (1995), and Shayara Bano (2017), repeatedly urging its consideration.
- India currently follows a plural legal system, including religious personal laws and secular laws like the Special Marriage Act, 1954, with some regional exceptions under Article 371.
- At present, while UCC remains debated nationally, Goa and Uttarakhand are cited as states with UCC-type provisions, and other states like Assam and Gujarat are exploring its implementation.

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Quick Bites:

- The Indian Junior Men's Hockey Team were crowned champions of the 2026 Men's Junior Asia Cup after defeating Korea 4-1 in the Gold Medal match in Moqi, China, on Sunday. The victory saw India successfully defend their title and lift the continental crown for a record sixth time.
- The three-day Dryland Congress 2026 concluded today in New Delhi with a strong call for greater South–South and triangular cooperation to accelerate solutions for dryland agriculture. The final day coincided with the United Nations Day for South–South Cooperation and culminated in the adoption of the Delhi Declaration on Drylands (3D), setting out a shared agenda for transforming dryland agriculture through collaboration, knowledge exchange, innovation and collective action across the Global South. It was endorsed at the closing plenary by participating governments, institutions, partners and delegates of the Dryland Congress 2026.
- India to host World Circular Economy Forum 2026, themed 'Circular Economy: Transition for People and Prosperity', at Gandhinagar during 15th - 18th September, 2026
- Researchers have discovered a new clam species, Deltachion ravenshaw, from the sandy intertidal stretches of the Devi Estuary in Puri, Odisha. It belongs to Donacidae, a family of bivalve molluscs. The discovery is notable because Deltachion species are generally marine, whereas D. ravenshaw was found in the brackish, fluctuating-salinity waters of an estuary. India now has 12 recorded Donacidae species, including 7 along the Odisha coast.
- Mayun Island (Perim Island) is a small volcanic island of Yemen located in the strategically important Bab el-Mandeb Strait, at the southern entrance of the Red Sea. Spread over about 13 sq km, it divides the strait into two channels and overlooks one of the world's key maritime routes connecting the Red Sea–Suez Canal with the Arabian Sea. Its strategic importance increased after the opening of the Suez Canal; the British seized the island in 1857 and established a coaling station.

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15-09-2026

1. MERCOSUR Group:

Context: India and MERCOSUR signed the First Additional Protocol to the India–MERCOSUR Preferential Trade Agreement (PTA) to facilitate acceptance of electronic Certificates of Origin, marking an important step towards facilitating paperless trade and modernising customs procedures between India and the MERCOSUR countries..

About MERCOSUR Group:

- MERCOSUR (Southern Common Market) is a South American regional economic organisation, created in 1991 through the Treaty of Asunción.
- **Objective:** Promote free movement of goods, services, capital and people; it became a customs union in January 1995.
- **Original members:** Argentina, Brazil, Paraguay and Uruguay. Bolivia later joined, while Venezuela has been suspended since 2016.
- **Associate members:** Chile, Colombia, Ecuador, Guyana, Peru and Suriname.
- **Headquarters:** Montevideo, Uruguay; official working languages are Spanish and Portuguese.
- **Common Market Council (CMC):** Highest decision-making body; comprises foreign/economic ministers of member states, works by consensus, and presidency rotates every six months.
- **India–MERCOSUR:** India and MERCOSUR signed a Preferential Trade Agreement (PTA) in 2004, aimed at enhancing bilateral trade.

2. Great Indian Bustard (GIB):

Context: Union Minister for Environment, Forest and Climate Change, Shri Bhupender Yadav, today visited the Great Indian Bustard (GIB) habitat at Naliya in Kachchh district of Gujarat. He reviewed the ongoing efforts for providing maximum protection to the GIB, with special focus on comprehensive conservation and habitat-management measures being undertaken across the GIB landscape of Kachchh.

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About Great Indian Bustard (GIB):

- It is a ground bird with a height of about one metre.
- The body is brownish with a black patch spotted in white.
- It is protected under schedule-1 of the Wildlife Protection Act, 1972.
- It is largest among the four-bustard species found in India and other three being MacQueen's bustard, lesser florican and the Bengal florican.
- They feed on insects, lizards, grass seeds etc. This bird, found mainly in Rajasthan and Gujarat.
- Its historic range included much of the Indian sub-continent but it has now shrunken to just 10 percent of it.
- Rajasthan initiated "Project Great Indian Bustard" on World Environment Day 2013.
- In 2015, the Central government launched the GIB species recovery programme.
- It is listed as critically endangered in the IUCN list.

3. Moth Bean:

Context: Recently, ICAR's Central Arid Zone Research Institute (CAZRI), Jodhpur, has developed a new generation of moth bean varieties capable of withstanding highly variable weather conditions, including prolonged drought and excessive rainfall.

About Moth Bean:

- Moth bean (Matki/Dew bean) is a hardy annual pulse crop of the Fabaceae family, well adapted to India's arid and semi-arid regions.
- **Drought adaptation:** Its fast-penetrating taproot accesses moisture from deeper soil layers, enabling survival under water-stressed conditions.
- **Climate:** Optimum temperature is 24–32°C; it can tolerate temperatures up to 45°C and survive with only 200–300 mm rainfall.
- **Soil:** Best suited to well-drained sandy-loam soils; has wide pH tolerance (3.5–10) and some salinity tolerance.
- **Major states:** Mainly cultivated in Rajasthan, Maharashtra, Gujarat and Haryana.

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- **Uses:** Provides protein-rich dal, nutritious livestock fodder, and acts as green manure, improving soil fertility.

4. Tso Kar Lake:

Context: The Ladakh administration recently launched an ambitious project to revive and restore the shrinking Tso Kar Lake by diverting nearly 320 million litres of untapped glacier water daily from the glacial stream, Rupsho Kharnak.

About Tso Kar Lake:

- Tso Kar, meaning "White Lake" in Ladakhi, is a high-altitude salt lake in the Rupshu Valley of Ladakh, at about 4,660 m (15,280 ft).
- It is the smallest of Ladakh's three prominent lakes, along with Pangong Tso and Tso Moriri.
- The Tso Kar wetland system includes Tso Kar and nearby freshwater Startsapuk Tso, surrounded by extensive marshlands.
- The region supports rich biodiversity, including black-necked cranes, bar-headed geese, great crested grebes, kiang, ibex and snow leopards.
- Khampas, the local nomadic community, traditionally collect salt from the lake shores for livelihood.
- **Ramsar Site:** Tso Kar was designated a Wetland of International Importance in 2020, recognising its ecological significance.

5. Mercury:

Context: Mercury may have shrunk more than scientists previously estimated, with the planet's diameter potentially reducing by as much as 23 km, a recent study has revealed.

About Mercury:

- Mercury is the smallest and innermost planet of the Solar System and one of the four terrestrial (rocky) planets.

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- It experiences extreme surface temperatures, from about +450°C during the day to −180°C at night; however, Venus is the hottest planet due to its thick, greenhouse-rich atmosphere.
- Polar permanently shadowed regions never receive sunlight and can preserve water ice despite Mercury's proximity to the Sun.
- Its ancient, heavily cratered surface shows evidence of past volcanism and tectonic activity; the Caloris Basin is one of the Solar System's largest impact basins.
- Mercury has a large, iron-rich core, occupying a substantial proportion of its interior.
- MESSENGER became the first spacecraft to orbit Mercury, operating from 2011–2015 and extensively studying the planet.
- BepiColombo, a joint ESA–JAXA mission, is studying Mercury and is expected to enter orbit in 2026.

6. Java Sea:

Context: An Indonesian passenger ship carrying 243 people was reported missing after losing contact in the Java Sea early during bad weather.

About Java Sea:



- Java Sea is a part of the western Pacific Ocean, located between the Indonesian islands of Java and Borneo (Kalimantan).

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- It is bordered by Borneo to the north, Java to the south, Sumatra to the west, and Celebes, Flores and Bali seas to the east.
- It forms part of the Sunda Shelf, a shallow continental shelf of Southeast Asia.
- The sea experiences a monsoon climate and supports rich marine biodiversity, including protected areas such as Ujung Kulon and Karimunjawa.
- It contains significant petroleum and natural gas resources, which contribute to Indonesia's export economy.

Quick Bites:

❖ Air Marshal Ashutosh Dixit, Vice Chief of the Air Staff, inaugurated the first Indian Air Force Dronathon-2026 at the Pokhran Field Firing Range, Jaisalmer, Rajasthan. Dronathon-2026 is an IAF initiative aimed at engaging directly with the Indian unmanned systems industry and assessing emerging technologies under realistic operational conditions.

❖ The Department of Financial Services was awarded the First Prize under 'Rajbhasha Kirti' (in the category of ministries/departments with fewer than 300 personnel) for its outstanding implementation and innovative achievements in the field of Official Language during the year 2025-26. The award was presented during the 6th All India Official Language Conference and Hindi Diwas organised by the Department of Official Language, Ministry of Home Affairs, under the chairmanship of the Union Minister of Home Affairs and Cooperation, Shri Amit Shah. The conference took place on 14–15 September 2026 at the CIDCO Exhibition Centre, Vashi, Navi Mumbai.

❖ Directorate of Revenue Intelligence (DRI) seizes more than 362 MT Pakistan-origin dry dates under 'Operation Deep Manifest'. Acting on specific intelligence, DRI officers intercepted 13 containers of dry dates imported by a Mumbai-based firm at CFS Ambad, Nashik. The consignments had arrived from Jebel Ali, UAE, with import documents declaring the UAE as the country of origin. Preliminary investigation revealed a carefully orchestrated transshipment arrangement designed to conceal the Pakistan-origin of the goods. The dry dates were initially shipped from Karachi Port, Pakistan, to Jebel Ali Port, UAE, in one set of containers aboard one vessel. At Jebel Ali, the goods were merely transshipped and trans

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- The fifth Indian Technical and Economic Cooperation (ITEC) Executive Capacity Building Programme on Human Rights for National Human Rights Institutions (NHRIs) of the Global South, organised by the National Human Rights Commission (NHRC), India, in partnership with the Ministry of External Affairs (MEA), began in New Delhi today.
- INS Kulish is a Kora-class guided missile corvette of the Indian Navy that recently reached Ream Naval Base, Cambodia, during the Eastern Fleet's operational deployment. Designed and built indigenously by GRSE, it was commissioned in 2001. Its primary weapon is the Russian-origin Kh-35 anti-ship cruise missile; the ship has advanced sensors and electronic systems, a 1,500-tonne displacement, and an operational range of up to 2,500 nautical miles without replenishment.
- The Malabari goat, also called Tellicherry or Cutch, is a goat breed native to Kerala, and a recent study suggests that ancient spice-route networks may have influenced its maternal genetic history. It is a medium-sized, bearded breed with variable coat colours, ranging from white to black, and is reared mainly for milk and meat, while its skin is valued for tanning. It is highly adaptable to humid tropical conditions and produces about 0.5–1.5 litres of milk per day.
- Willingdon Island is a man-made island in Kochi, Kerala, created in 1936 by dredging soil from Vembanad Lake to develop a deep-water port and promote trade. The project was initiated during the tenure of British Viceroy Lord Willingdon and designed by harbour engineer Sir Robert Bristow. Today, it is an important commercial and strategic centre, housing the Port of Kochi, Southern Naval Command of the Indian Navy, and Central Institute of Fisheries Technology, and is connected to mainland Kochi by the Venduruthy Bridge.
- Melanoma is a type of skin cancer originating in melanocytes, the cells that produce the pigment melanin. While it commonly develops on sun-exposed skin due largely to ultraviolet (UV) radiation, in India it frequently occurs on the soles of the feet and beneath the nails, which are often overlooked. Key warning signs include a change in an existing mole or the appearance of a new, unusual pigmented growth.

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16-09-2026

1. Nuakhai festival:

Context: The Prime Minister, Shri Narendra Modi has extended greetings on the auspicious occasion of Nuakhai festival.

About Nuakhai festival:

- Nuakhai is an important agricultural and social festival of Western Odisha and adjoining areas of Simdega, Jharkhand.
- The term 'Nua' means new and 'Khai' means food, signifying the consumption of the new harvest.
- It is celebrated on the fifth day of the lunar fortnight of Bhadrapada/Bhaadra (August–September), a day after Ganesh Chaturthi.
- The festival marks the welcoming and offering of the newly harvested rice of the season to the respective presiding deities.
- The festival is traditionally associated with nine sets of rituals, performed as a prelude to the main celebration.
- People offer the newly harvested crop called Nabanha to their deities and subsequently prepare and enjoy various delicacies from the new crop. Nuakhai Juhar, the ceremonial exchange of greetings and respect among elders and family members, is a major ritual.

2. Seed Phenotyping and Resource Optimization for Unified Trait Analysis (SPROUT):

Context: Union Minister of State (Independent Charge) for Science & Technology and Earth Sciences Dr. Jitendra Singh inaugurated the "SpeedSeed Phenotyping and Resource Optimization for Unified Trait Analysis" (SPROUT) facility at BRIC-National Institute of Plant Genome Research (BRIC-NIPGR), New Delhi, describing it as an important indigenous capability for developing climate-resilient crops suited to different weather conditions.

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About SPROUT:

- SPROUT is a season-independent, controlled-environment facility designed for high-throughput phenotyping and precision stress screening.
- It evaluates germplasm, breeding populations, mutants, transgenic and genome-edited plant lines under controlled conditions.
- The facility has a major focus on chickpea, helping link genomics and genome editing with precise trait evaluation and crop breeding.
- It aims to accelerate the pathway from gene discovery → trait validation → crop improvement, improving breeding efficiency.
- The facility is particularly important amid climate change and changing weather patterns, which require faster development of climate-resilient crop varieties.

3. Vitamin D:

Context: Low vitamin D levels may make recovery from breast cancer surgery more painful, according to a study of 184 women undergoing mastectomy.

About Vitamin D:

- Vitamin D (calciferol) is a fat-soluble vitamin, popularly called the "sunshine vitamin", produced in the skin when UV rays from sunlight trigger its synthesis.
- It can be obtained from fortified foods such as milk, cereals and yogurt, while natural sources include egg yolks, saltwater fish and liver.
- Vitamin D promotes calcium absorption and maintains calcium and phosphorus levels, which are essential for healthy bones and teeth.
- It also contributes to immune function, neuromuscular function, cell growth, glucose metabolism and regulation of inflammation.
- Vitamin D deficiency in children causes rickets, resulting in soft, weak and deformed bones.
- In adolescents and adults, deficiency can cause osteomalacia, characterised by bone pain and muscle weakness.

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- Deficiency risk may be higher among people with darker skin (higher melanin) and those whose clothing provides extensive skin coverage, as both can reduce UV exposure.
- Excessive vitamin D can cause nausea, vomiting, weakness, confusion, dehydration, excessive thirst/urination and kidney stones; severe toxicity may lead to kidney failure and irregular heartbeat.

4. Bab-el-Mandeb Strait:

Context: India is "deeply concerned" by the blockades in the Bab-el-Mandeb Strait in the Red Sea and the Strait of Hormuz in the Persian Gulf, the Ministry of External Affairs said on Tuesday, even as the Houthis ramped up attacks on Saudi cities and a ship, carrying 14 Indian seafarers, was targeted on Sunday off the Oman coast.

About Bab-el-Mandeb Strait:



- Bab el-Mandeb, at the southern tip of the Arabian Peninsula, is the gateway to the Red Sea through which around 12% of the world's trade passes.
- **Meaning:** Bab-el-Mandeb is an Arabic term meaning "Gate of Tears" or "Gate of Grief", reflecting the historical dangers of navigation.

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- **Location:** It is a narrow maritime chokepoint between the Arabian Peninsula and the Horn of Africa, connecting the Red Sea with the Gulf of Aden and the Arabian Sea/Indian Ocean.
- **Bordering Countries:** It separates Yemen (Asia) from Djibouti and Eritrea (Africa).
- **Key Island:** The Perim Island (Yemen) divides the strait into two navigation channels.
- **Gateway to Suez Canal:** It is the only sea entrance to the Red Sea from the Indian Ocean and forms a vital Asia–Europe trade route via the Suez Canal.
- **Energy Chokepoint:** It is a crucial transit route for crude oil, petroleum products, and LNG from the Persian Gulf to Europe and global markets.
- **Global Trade Importance:** Around 10–12% of global trade and nearly 30% of global container traffic passes through the Bab-el-Mandeb Strait.
- **Strategic Impact:** Any disruption forces ships to reroute via the Cape of Good Hope (South Africa), adding 10–14 days to voyages and increasing freight costs, insurance premiums, and global inflation.
- The Houthis are an Iran-backed, heavily armed political and military organization that emerged from Yemen's Zaydi Shia Muslim minority. Officially known as Ansar Allah, they control northern Yemen and are a key member of Iran's "Axis of Resistance"

5. Viksit Bharat Guarantee for Rozgar and Ajeevika Mission (Gramin) (VB-G RAM G):

Context: In its second month of operation, the government's new rural employment scheme, Viksit Bharat Guarantee for Rozgar and Ajeevika Mission (Gramin) (VB-G RAM G), registered a modest improvement in employment generation. However, a year-on-year comparison with the MGNREGS for August shows a 9% decline in the availability of work for the rural poor.

About Viksit Bharat Guarantee for Rozgar and Ajeevika Mission (Gramin) (VB-G RAM G):

- The Viksit Bharat-Guarantee for Rozgar and Ajeevika Mission (Gramin) Act, 2025 replaces and comprehensively reforms MGNREGA, marking a major shift in rural employment policy.
- The Act aligns rural employment with the Viksit Bharat 2047 vision by improving accountability, strengthening infrastructure creation, and enhancing income security in rural areas.

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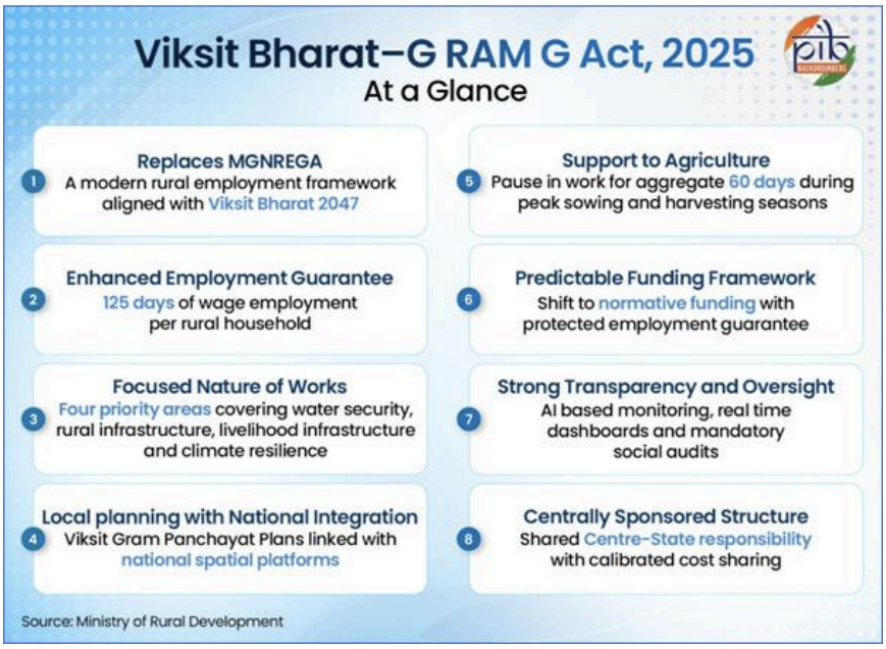

- Viksit Bharat Guarantee for Rozgar and Ajeevika Mission Gramin Act guarantees 125 days of wage employment per rural household annually (increased from 100 days).
- Employment is provided to adult members willing to undertake unskilled manual work, strengthening rural income security.
- A 60-day no-work period is built in to ensure availability of agricultural labour during peak sowing and harvesting seasons.
- Workers can still complete 125 days of employment within the remaining 305 days of the year.
- The design aims to balance the needs of farmers and rural labourers.
- Wages are to be paid weekly, and in any case within a fortnight of work completion.

Quick Bites:

❖ Sant Malukdas (1574–1682) was a renowned medieval poet-saint and philosopher of the Bhakti movement, born at Kada in present-day Uttar Pradesh. He preached religious tolerance, social equality, universal love and devotion to a formless God, reflecting the teachings of saints such as Kabir and Guru Nanak. He is popularly remembered for the couplet "Ajgar kare na chakri, panchi kare na kaam…", highlighting faith in

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divine providence. His important works include Gyan Bodh, Ratna Khan and Bhaktavachavali. The Department of Posts recently issued a commemorative postage stamp in his honour.

- The opening ceremony of 22nd edition of India-US Joint Military Exercise Yudh Abhyas was held today at Auli Foreign Training Node in Uttarakhand. The exercise is aimed at enhancing the joint military capability of both armies for employment of Integrated Battle Groups in mountainous and semi-mountainous terrain, with emphasis on infantry-dominated operations.
- The Varuna River, historically integral to Varanasi's geography and culture, is set to become an axis of modern urban mobility through the ₹10,998-crore, 43.218-km Varuna Elevated Corridor. Approved by the Union Cabinet in July, the corridor will connect NH-31 with the Varanasi Ring Road along the Varuna River, providing a high-capacity alternative route, improving connectivity and helping decongest Varanasi's existing urban roads.
- Ingerana aizawl is a newly recognised species of small, stout-bodied frog discovered along the Hratdawng Stream on the Mizoram University campus, about 15 km west of central Aizawl, Mizoram. Adult males measure around 22–25.5 mm in snout-to-vent length, while females measure 24.4–26 mm. The discovery highlights the rich amphibian diversity and ecological importance of Mizoram's stream ecosystems.
- SARAL AI, an initiative of the Anusandhan National Research Foundation (ANRF), is an AI-based platform aimed at making complex scientific research more accessible by converting research papers and patents into podcasts, short videos, posters and business briefs. Researchers can upload papers through arXiv links or LaTeX files, after which the system automatically extracts content and figures and uses AI models such as Gemini and GPT to generate engaging scripts. CSIR-NIScPR is leveraging SARAL AI to strengthen science communication and public understanding of research.
- Kawal Tiger Reserve (KTR) in Telangana lies at the southernmost tip of the Central Indian Tiger Landscape, with connectivity to Tadoba-Andhari Tiger Reserve in Maharashtra and Indravati Tiger Reserve in Chhattisgarh. It forms an important Godavari catchment and includes rivers such as Peddavagu and Kadam, with diverse forests, grasslands and wetlands dominated by Southern Tropical Dry Deciduous Forests. A 12-year study (2010–2022) found that KTR had no permanently resident tigers, highlighting challenges in sustaining a tiger population despite its landscape connectivity.

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- Kīlauea volcano in Hawaii remained in a prolonged precursory phase on 14 September 2026, before Episode 55 lava fountaining. The north vent within Halema‘uma‘u showed continuous spatter bursts overnight on 13–14 September 2026, and the USGS Volcano Alert Level stayed at WATCH with the Aviation Color Code at ORANGE.

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17-09-2026

1. Dadasaheb Phalke Award:

Context: The Prime Minister, Shri Narendra Modi, has congratulated legendary actor Shri Anant Nag Ji on being conferred the Dadasaheb Phalke Award. Shri Modi said that for several decades, Shri Anant Nag Ji's effortless performances, remarkable versatility and artistic brilliance have left an indelible mark on Indian cinema, particularly Kannada cinema. On the recommendation of the Dadasaheb Phalke Award Selection Committee, the Government of India is pleased to announce that the prestigious Dadasaheb Phalke Award 2024 will be conferred upon veteran actor Shri Anant Nag in recognition of his outstanding and invaluable contribution to the growth and development of Indian Cinema.

About Dadasaheb Phalke Award:

- Dadasaheb Phalke Award is India's highest national award in cinema, given for lifetime contribution to Indian cinema.
- It was instituted in 1969, the birth centenary year of Dadasaheb Phalke, to honour his contribution to Indian filmmaking.
- The first recipient was Devika Rani, regarded as the "First Lady of Indian Cinema."
- It recognizes outstanding contribution to the growth and development of Indian cinema.
- The award consists of a Swarna Kamal (Golden Lotus) medallion, shawl and ₹10 lakh cash prize and is presented by the President of India.
- Dhundiraj Govind Phalke (30 April 1870, Trimbak, Maharashtra) was a painter, photographer, playwright and magician before entering cinema.
- Known as the Father of Indian Cinema, he directed Raja Harishchandra (1913), India's first full-length feature film.

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2. Montreal Protocol:

Context: The Indian Institute of Tropical Meteorology (IITM), Pune, successfully marked World Ozone Day 2026 today by organizing a massive community-driven Beach Clean-up and Plastic Collection Drive at Nagaon Beach, Mumbai. The date commemorates the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer on 16 September 1987. World Ozone Day 2026 is Global action for a cooler planet, with the full slogan celebrating "10 Years of Sustainable Cooling under the Kigali Amendment to the Montreal Protocol."

About Montreal Protocol:

- Montreal Protocol is a landmark multilateral environmental agreement (MEA) regulating the production and consumption of nearly 100 ozone-depleting substances (ODS).
- ODS such as CFCs and HCFCs are used in refrigerators, air conditioners, aerosols and fire extinguishers; they damage the stratospheric ozone layer, increasing harmful UV radiation.
- It was adopted on 16 September 1987 under the Vienna Convention for the Protection of the Ozone Layer and has achieved universal ratification.
- The Protocol provides a step-wise, time-bound phase-out of ODS, with different schedules for developed and developing (Article 5) countries.
- Parties have binding commitments on ODS production/consumption, trade controls, annual data reporting and licensing systems for imports and exports.
- Its governance is through the Meeting of the Parties, supported by the Open-ended Working Group and the Ozone Secretariat, based at UNEP headquarters, Nairobi.
- Kigali Amendment (2016) introduced a global phase-down of hydrofluorocarbons (HFCs), which are powerful greenhouse gases but were widely used as alternatives to CFCs/HCFCs.
- The Kigali Amendment aims to reduce HFC production and consumption by about 80–85% by 2045, potentially avoiding up to 0.5°C of warming by 2100.

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3. PM Vishwakarma scheme:

Context: PM Vishwakarma Completes Three Years: 30 Lakh Artisans Registered Under the Scheme Third Anniversary of PM Vishwakarma to be Celebrated in Kolkata on 17th September 2026

About PM Vishwakarma scheme:

- PM Vishwakarma Scheme is a Central Sector Scheme launched in 2023 to provide comprehensive support to traditional artisans and craftspeople.
- **Objective:** Promote socio-economic empowerment, strengthen traditional crafts and ensure sustainable livelihoods.
- **Nodal Ministry:** Ministry of Micro, Small and Medium Enterprises (MSME); implemented for FY 2023-24 to FY 2027-28 (5 years).
- It covers 18 traditional trades, including boat makers, armourers, blacksmiths, hammer and tool-kit makers, etc., and is available to rural and urban artisans across India.
- **Eligibility:** Artisans aged 18 years or above, engaged in traditional trades, with restrictions on having availed similar government loans during the preceding 5 years.
- **Skill & toolkit support:** Basic training of 5–7 days and advanced training of 15 days or more, with ₹500/day stipend; toolkit incentive of up to ₹15,000 through e-vouchers.
- **Credit support:** Collateral-free enterprise loans up to ₹3 lakh, provided in two tranches of ₹1 lakh and ₹2 lakh, at a concessional 5% interest rate, along with digital and market-linkage support.

4. India Electric Mobility Index 2025 report:

Context: India Electric Mobility Index (IEMI) report was launched by NITI Aayog, highlighting that the global transition to electric mobility is well underway.

About India Electric Mobility Index 2025 report:

- IEMI 2025 assesses electric mobility across 3 themes: Transport Electrification (50%), Charging Infrastructure Readiness (30%), and EV Research & Innovation (20%).

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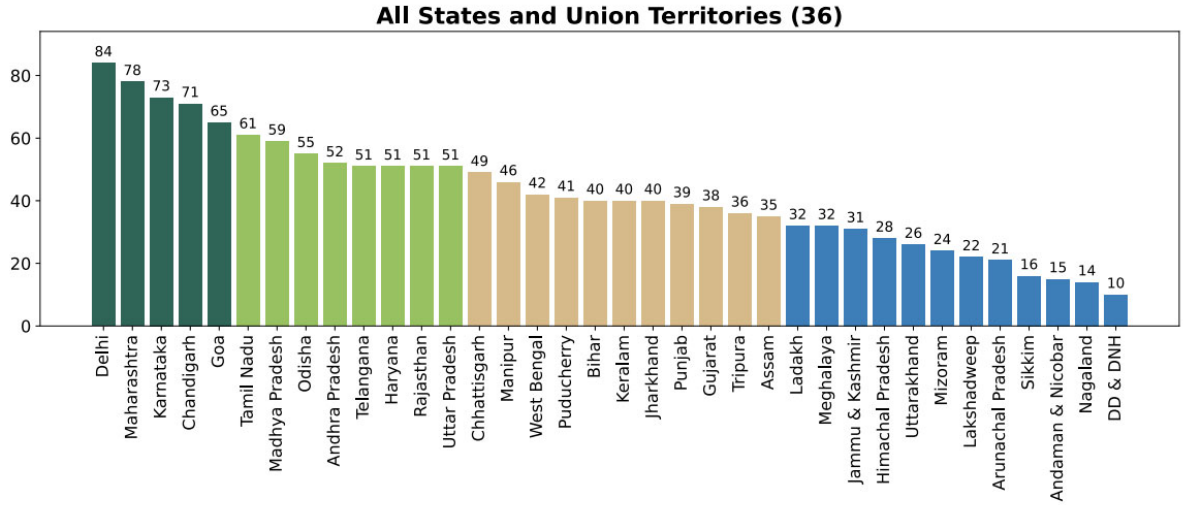
- Transport Electrification (50%) includes private EV adoption (12.5%), commercial EV adoption (12.5%), governance (7.5%), purchase incentives (6%), transition incentives (5%), operational support (4%) and fuel-price parity (2.5%).
- Charging Infrastructure (30%) covers charger-to-vehicle ratio (15%), capital subsidies (4.5%), infrastructure initiatives (3%), building bye-laws (3%), renewable-energy capacity (3%) and power availability (1.5%).
- Research & Innovation (20%) comprises EV startups (10%), R&D initiatives (6%) and EV-related patents (4%).
- The 16 indicators together carry 100% weightage, with the largest individual weights given to charger-to-vehicle ratio (15%) and private/commercial EV adoption (12.5% each).
- Performance categories: Top Performer ≥65, Frontrunner 50–64, Emerging Performer 35–49, and Aspirant <35.



5. SPARSH Pension System:

Context: Defence Accounts Department (DAD) has achieved a remarkable milestone in the normalization of discrepant pension cases on SPARSH (System for Pension Administration – Raksha) through a focused and concentrated approach

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About SPARSH Pension System:

- SPARSH (System for Pension Administration – Raksha) is a Ministry of Defence initiative for comprehensive digital pension management of defence personnel.
- It caters to the Army, Navy, Air Force and Defence Civilians, covering pension sanction, claims and disbursement.
- It is administered by the Defence Accounts Department through the Principal Controller of Defence Accounts (Pensions), Prayagraj.
- It is a centralised, web-based pension system that directly deposits pension into pensioners' bank accounts, without dependence on third-party intermediaries.
- Self-verification and digital validation enable pensioners to correct/rectify data and reduce the need for multiple visits to pension offices.
- It provides transparency by allowing pensioners to view their pension account, entitlements and related information digitally.
- SPARSH maintains a complete digital history of pension events and entitlements, from commencement of pension until its cessation or transfer to the last eligible beneficiary.

6. Nagarahole Tiger Reserve:

Context: Recently, the Centre has issued a draft eco-sensitive zone (ESZ) notification for Nagarahole Tiger Reserve for the second time, identifying a 573.95 sq km area around the reserve forest where some activities will be regulated.

About Nagarahole Tiger Reserve:

- **Location:** Situated in Mysuru and Kodagu districts of Karnataka, near the Karnataka–Tamil Nadu–Kerala tri-junction.
- **Geographical significance:** Acts as an ecological confluence of the Western and Eastern Ghats.
- **Name:** Derived from the Nagarahole River, meaning "snake stream" in Kannada, which joins the Kabini River.
- **Biosphere Reserve:** Forms part of the Nilgiri Biosphere Reserve, a UNESCO World Heritage Site.

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- **Neighbouring protected areas:** Bandipur Tiger Reserve lies to its southeast and Wayanad Wildlife Sanctuary to its southwest; the Kabini and Moyar rivers flank the reserve.
- **Vegetation:** Ranges from dry deciduous forests in the east to moist and semi-evergreen forests in the wetter west; important species include rosewood, sandalwood and bamboo.
- **Fauna:** Supports Bengal tiger, gaur, sloth bear, dhole, golden jackal and four-horned antelope, among other wildlife.

7. Pygmy hog:

Context: The decline of the pygmy hog — the sole surviving species of the genus Porcula and the world's smallest wild suid — is a narrative about the decline of India's alluvial floodplains. The pygmy hog depends significantly on dense grasslands to feed, conceal itself, and reproduce, so distress among these animals is an indicator of the floodplain suffering degradation.

About Pygmy hog:

- Pygmy hog (Porcula salvinia) is a very small wild pig species that mainly inhabits the tall, wet grasslands of Assam.
- It is notable as one of the few mammals that builds its own nest with a roof and is an indicator species of healthy wet grassland ecosystems.
- Historically, it occurred across the Himalayan foothills from Uttar Pradesh to Assam, including Nepal's Terai and Bengal's Duars, but its range has greatly declined.
- **Conservation status:** Endangered (IUCN), CITES Appendix I and Schedule I under the Wildlife (Protection) Act, 1972.
- Major threats include loss and degradation of grassland habitat and illegal hunting.
- The Pygmy Hog Conservation Programme (PHCP) is a collaborative initiative involving the Assam Forest Department, Durrell Wildlife Conservation Trust, IUCN Wild Pig Specialist Group and MoEFCC; NGOs Aaranyak and EcoSystems India implement it.
- Conservation efforts began in 1971, with six hogs captured from Manas National Park in 1996 for captive breeding; reintroduction began in 2008 in Sonai-Rupai, Orang and Bornadi in Assam.

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8. Global Gender Gap Index 2026:

Context: India retained the 131st rank on the Global Gender Gap Index 2026 released by the World Economic Forum on Wednesday, with Iceland, Finland and Norway maintaining their top three slots respectively. The 14 countries ranked below than India on the index include Papua New Guinea, Kuwait, Oman, Qatar, Tajikistan, Saudi Arabia, Egypt, Morocco, Mali, Algeria, and Congo. Chad was the lowest-ranked country in the index, with Iran and Pakistan joining it in the bottom three.

About Global Gender Gap Index 2026:

- It benchmarks countries on their progress towards gender parity in four key dimensions with Submatrices- Economic Participation and Opportunity, Educational Attainment, Health and Survival, Political Empowerment.
- It aims to serve as a compass to track progress on relative gaps between women and men on health, education, economy and politics.
- It is published every year by the World Economic Forum.
- **Overall Performance:** India ranked 131st out of 145 economies, with 64.5% of the overall gender gap closed, improving by 4.3 percentage points since 2006.
- **Economic Participation & Opportunity:** India scored 41.2%, up 0.5 percentage points from the previous edition. Professional and technical worker parity increased to 49.9%, while labour-force participation parity stood at 44.1%.
- **Educational Attainment:** India scored 96.6%, indicating near-parity. It maintains full parity in secondary and tertiary enrolment, while adult literacy parity stood at 82.5%.
- **Health & Survival:** India scored 95.6%, showing an improvement over the previous edition. However, the sex ratio at birth remains below its 2006 level.
- **Political Empowerment:** India scored 24.5% and ranked 67th globally on this sub-index, making it India's highest-ranked sub-index in 2026. Parliamentary parity was 16.1%, while ministerial parity was 5.9%

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Rank	Economy	Score 0–1, 1=parity
1	Iceland	0.930
2	Finland	0.872
3	Norway	0.857
4	Namibia	0.845
5	United Kingdom	0.842
6	New Zealand	0.828
7	Sweden	0.823
8	Australia	0.819
9	Germany	0.817
10	Ireland	0.814

131	India	0.645		0.001	-
132	Papua New Guinea	0.642		0.003	+1
133	Kuwait	0.641		-0.006	-5
134	Oman	0.639		0.001	-
135	Qatar*	0.638		n/a	n/a
136	Tajikistan	0.638		-0.008	-7
137	Saudi Arabia	0.633		-0.010	-5
138	Egypt	0.632		0.007	+1
139	Morocco	0.632		0.004	-2
140	Mali	0.619		0.002	-
141	Algeria	0.618		0.004	-
142	Democratic Republic of the Congo	0.595		-0.006	+1
143	Pakistan	0.595		0.028	+5
144	Iran (Islamic Republic of)	0.585		0.002	+1
145	Chad	0.578		0.007	+1

Quick Bites:

❖ Prime Minister Shri Narendra Modi will inaugurate SEMICON India 2026 on 17 September 2026 at around 10 AM at Yashobhoomi, New Delhi. Prime Minister will also address the gathering on the occasion. The three-day conference and exhibition, being held from 17 to 19 September 2026, will be organised on the theme 'Silicon to Systems: Building the Ecosystem'. It will bring together global and Indian companies,

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policymakers, investors, researchers, start-ups, academic institutions and students from across the semiconductor and electronics value chain.

- The Union Cabinet, chaired by the Prime Minister Shri Narendra Modi, has approved the proposal of the Ministry of Labour & Employment to enhance the wage ceiling for mandatory coverage under the Employees' Provident Fund Organisation (EPFO) from Rs.15,000 to Rs.25,000 per month. The decision is expected to bring more than 51 lakh additional employees within the ambit of mandatory EPFO coverage, significantly widening social security protection for workers.
- The Third BIMSTEC Conference on Traditional Medicine Knowledge, Genetic Resources and Intellectual Property Rights commenced today in Goa. The conference is being organised by the Ministry of Ayush, Government of India, with the All India Institute of Ayurveda (AIIA), Goa, serving as the nodal institute.
- Union Home Minister and Minister of Cooperation Shri Amit Shah today said that in pursuit of Prime Minister Shri Narendra Modi's vision of zero tolerance against terrorism, the Ministry of Home Affairs (MHA) has declared the Shahzad Bhatti Network as a terrorist organization under the Unlawful Activities (Prevention) Act (UAPA).
- Shri Ashok Kumar Lahiri, Vice-Chairman, NITI Aayog, released the latest edition of the "Trade Watch Quarterly" publication for Quarter 1 of FY27 (Apr-Jun 2026) on 16th September 2026, in New Delhi alongwith CEO and other senior officials of NITI Aayog. The latest edition of Trade Watch Quarterly provides a comprehensive assessment of global and domestic trade trends amid heightened geopolitical and trade policy uncertainties, even as global trade has remained resilient.
- Ramjak Mountain is a 6,318-metre-high peak located in the remote Lahaul region of Himachal Pradesh, near Shingo La, a popular trekking route connecting Himachal Pradesh with Zanskar. It is known for its sharp, icy summit and technically challenging terrain, making it a demanding high-altitude climbing destination.
- Diplodocus was a giant, long-necked, herbivorous sauropod dinosaur that lived during the Late Jurassic (155–145 million years ago). It had a massive body, four pillar-like legs and a long neck and tail. The name Diplodocus means "double beam", referring to its distinctive tail bones, and it is considered among the longest complete dinosaurs discovered. Recently found fossils in Spain represent the first known remains of Diplodocus outside the United States.

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- Gucchi mushroom (Morchella esculenta) is a rare and highly valued wild mushroom found in the Himalayan regions of Jammu & Kashmir, Himachal Pradesh and Uttarakhand. It is identified by its honeycomb-like cap and pale, hollow stem, and typically grows in mountainous coniferous forests under specific soil, moisture, temperature and snowmelt conditions. Its limited natural habitat and difficulty in mass cultivation make it a sought-after ingredient.
- New Zealand is an island country in Oceania, located in the South Pacific Ocean, southeast of Australia. It mainly comprises the North Island and South Island, separated by the Cook Strait, with Wellington as its capital. Recently, its Parliament passed legislation to implement a Free Trade Agreement (FTA) with India.
- Karnataka declared September 15 as Engineers' Day in 2026 and made the annual observance an official state event. The State government also allowed engineers to use the prefix "Er." before their names, on the pattern of "Tr." for teachers.
- Odisha has received approval for its second semiconductor unit, a silicon carbide device manufacturing facility by M/s SiCSem Private Limited, on 15 September 2026. The project involves an investment of ₹3,406.25 crore and will come up at IDCO Infovalley-II in Arisol Mouza under Jatni tehsil of Khordha district, within the Falta Special Economic Zone.
- Sanjukta Parashar, a 2006-batch Indian Police Service officer of the Assam-Meghalaya cadre, became the first woman officer to head the Central Reserve Police Force's CoBRA unit in September 2026. She took charge as Inspector General of the 10-battalion CoBRA formation from 1996-batch IPS officer Danesh Rana.
- Exercise Eager Lion 2026 began on 15 September 2026 at Fort Carson in Colorado. The two-week drill is being conducted by the United States Central Command and the Jordanian Armed Forces, with more than 200 military personnel from Jordan and the United States taking part.
- With the Strait of Hormuz in a chokehold due to Iran-U.S. hostilities, Oman has pitched investment opportunities to India in a new port that could provide uninterrupted access to energy resources from the Persian Gulf. Speaking here on Wednesday, a high-level representative of the Sohar Port of Oman welcomed Indian investments into the port and said it would serve as a platform to connect businesses in regional and global markets.

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18-09-2026

1. Gallium Nitride Monolithic Microwave Integrated Circuit (GaN MMIC) Technology:

Context: Recently, the Defence Research and Development Organisation (DRDO) has successfully demonstrated and implemented indigenous Gallium Nitride Monolithic Microwave Integrated Circuit (GaN MMIC) Technology.

About GaN MMIC Technology:

- GaN MMIC (Gallium Nitride Monolithic Microwave Integrated Circuit) is an advanced semiconductor chip that integrates transistors, resistors and capacitors on a single GaN substrate to process high-frequency microwave signals.
- DRDO developed indigenous GaN MMIC technology in 2024, enabling India to join an elite group of countries possessing this capability, including the US, Russia, France, Germany, South Korea and China.
- The technology is designed for applications up to the X-band frequency range and is important for advanced radars, sensors, satellites and missile systems.
- A small indigenous GaN chip measuring about 3.5 × 3 mm can deliver up to 30 W of power and offers very high operating speeds compared with conventional silicon technology.
- GaN's exceptional thermal and electrical properties enable higher power output, better energy efficiency, faster signal processing and improved performance at high frequencies.
- It also enables smaller and lighter systems, better heat management and greater reliability under the harsh operating conditions of modern defence platforms.

2. Changthang Cold Desert Wildlife Sanctuary:

Context: Authorities will undertake spatial mapping and field verification of military installations within the Changthang Cold Desert Wildlife Sanctuary in Ladakh in coordination with police and the defence establishment, officials said recently.

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About Changthang Cold Desert Wildlife Sanctuary:

- Changthang Wildlife Sanctuary is located on the Ladakhi Changthang Plateau in Leh district, covering nearly 4,000 sq km, with elevations ranging from 14,000–19,000 ft.
- Its landscape consists of deep gorges and vast high-altitude plateaus, and includes high-altitude lakes such as Tso Moriri, Pangong Tso and Tso Kar.
- The region is traditionally inhabited by the Changpa nomadic pastoral community, which rears yaks, goats and sheep across the high-altitude grasslands.
- The sanctuary is strongly associated with Tibetan Buddhist culture and includes Korzok village, one of the world's highest villages, known for Korzok Monastery.
- The sanctuary supports nearly 200 species of wild plants, particularly in the higher pastures, which provide food for local wildlife.
- Major fauna include the Snow Leopard, Kiang (Tibetan wild ass), Tibetan Wolf, Wild Yak, Bharal, Brown Bear, Tibetan Argali, Tibetan Gazelle and Marmot.
- It is also an important habitat for avifauna, including the Black-necked Crane, Brahminy Duck and Brown-headed Gull.

3. Project Cheetah:

Context: Project Cheetah completed four years on 17 September 2026. India's cheetah population under the project stands at 52, including 32 cheetahs born in India. The animals are located in Kuno National Park and Gandhi Sagar Sanctuary in Madhya Pradesh.

About Project Cheetah:

- Project Cheetah is the world's first intercontinental large wild carnivore translocation project.
- The project aimed at the reintroduction of Cheetahs in the country which had become extinct in the country.
- The project involves translocation of cheetahs from source countries in Africa.
- Kuno National Park in Madhya Pradesh has been chosen as the first reintroduction site due to its suitable grasslands and prey base.

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- The first batch of eight cheetahs (five females and three males) arrived in India from South Africa in September 2022.
- In February 2023, an additional 12 cheetahs were translocated from South Africa under an agreement for further introductions over the next 8-10 years.
- On February 28, 2026, nine cheetahs (six females and three males) arrived from Botswana under Project Cheetah.

About Cheetah:

- Cheetah (Acinonyx jubatus) is the world's fastest land animal, capable of reaching around 100–120 km/h over short distances; its slender body, long legs, flexible spine and semi-retractable claws aid rapid running.
- It mainly inhabits open grasslands, savannas, scrublands, semi-arid regions and open woodlands, where good visibility helps in hunting.
- Its black tear marks from the eyes towards the mouth may reduce sunlight glare and improve visual focus during pursuit; it mainly feeds on gazelles, antelopes, hares and other small-to-medium mammals.
- Cheetahs communicate through urine, faeces and scent marking, often using prominent objects such as trees, bushes, rocks and termite mounds.
- Females generally live alone with cubs, while males may form coalitions, commonly with brothers.

4. Gujarat International Finance Tec-City (GIFT City):

Context: GIFT City, or Gujarat International Finance Tec-City, ranked 37th globally in the Global Financial Centres Index 40 and 26th in the FinTech rankings in September 2026. The index assessed 139 financial hubs worldwide through 144 quantitative measures and 39,531 professional assessments.

About Gujarat International Finance Tec-City (GIFT City):

- Gujarat International Finance Tec-City (GIFT City) is India's first International Financial Services Centre (IFSC), located in Gandhinagar, Gujarat.

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- As India's first operational smart city, it represents the country's ambition to build a global hub for financial and technological services.
- Backed by strong government support, GIFT City is designed to blend world-class infrastructure with sustainable urban development.
- Established as India's first International Financial Services Centre (IFSC) under the SEZ Act, 2005.
- Located in Gandhinagar, Gujarat, spanning nearly 1000 acres and now being expanded to 3,300+ acres, the city is divided into two parts: the Domestic Tariff Area (DTA) and the Multi-service Special Economic Zone (GIFT SEZ).
- GIFT City is purposefully built to support both onshore and offshore financial operations, draw global investment, drive innovation, and generate high-quality jobs, contributing to India's vision for Viksit Bharat 2047.
- GIFT City is India's first International Financial Services Centre (IFSC) and a Multi-Services Special Economic Zone (SEZ).
- GIFT IFSC is governed by the International Financial Services Centres Authority (IFSCA) with strong government policy support.
- Units operating in GIFT IFSC are treated as non-residents under the Foreign Exchange Management (FEMA) regulations.
- IFSCA was established under the IFSCA Act, 2019 and became operational in April 2020.
- IFSCA serves as a unified regulator, replacing the regulatory roles of RBI, SEBI, IRDAI, and PFRDA within GIFT IFSC.
- IFSCA regulates and develops financial products, institutions, and services while promoting ease of doing business and global best practices.
- The India International Bullion Exchange (IIBX) was launched at GIFT IFSC in July 2022.
- IIBX provides a transparent platform for bullion imports, trading, investment products, and vaulting services.

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5. Stem cells:

Context: The Union Health Ministry has asked States and Union Territories to ensure that stem cell therapy is offered as standard clinical care only for disease conditions and indications approved by the Ministry, with its use for Autism Spectrum Disorder (ASD) restricted to duly approved clinical trials. In an advisory issued on September 16, the Ministry reiterated the existing regulatory framework governing stem cell research and therapy. The advisory was issued to States and Union Territories that have adopted the Clinical Establishments (Registration and Regulation) Act, 2010, following a January 30, 2026, judgment of the Supreme Court in Yash Charitable Trust & Ors. v. Union of India & Ors.

About Stem cells:

- **Definition:** Stem cells are undifferentiated foundational cells capable of giving rise to specialized cells such as blood, nerve, and muscle cells.
- **Self-Renewal:** They can divide repeatedly to produce identical copies of themselves.
- **Differentiation:** They can develop into various specialized cell types that perform specific functions in the body.
- **Types by Source:** Embryonic Stem Cells (ESCs), Adult/Somatic Stem Cells, Induced Pluripotent Stem Cells (iPSCs), etc.
- **Types by Differentiation Potential:** Totipotent cells (can form all cell types), Pluripotent cells (can form most body tissues), Multipotent cells (can form a limited range of related cell types), etc.
- **Importance:** Stem cells play a crucial role in growth, tissue repair, regeneration, and regenerative medicine research.

Quick Bites:

❖ India's First Soil Carbon Payments Put Farmers at the Centre of Regenerative Agriculture. India's agricultural carbon market has moved from policy to the farm level, with more than 2,500 smallholder farmers in Punjab and Haryana set to receive digital payments for adopting regenerative farming practices. The first payments were released at a programme organised at Punjab Agricultural University (PAU), Ludhiana, marking a new link between sustainable agricultural practices and additional income for farmers.

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- Ministry of Skill Development and Entrepreneurship (MSDE) inaugurated the Skills4Future EV & Green Skills Lab at the National Skill Training Institute (NSTI), Bengaluru recently. The lab has been established under the Skills4Future programme, a collaborative initiative of Shell India,
- Directorate General of Training (DGT), Ministry of Skill Development and Entrepreneurship (MSDE) and Edunet Foundation, aimed at equipping youth with future-ready skills in Electric Vehicles (EVs) and green technologies.
- The Taklamakan Desert, located in southwestern Xinjiang, northwest China, is one of the world's largest sandy deserts and lies within the Tarim Basin. Covering about 3.2 lakh sq km, it extends around 960 km east–west and is the world's second-largest shifting-sand desert, with nearly 85% of its area covered by crescent-shaped dunes. It is bounded by the Tian Shan Mountains to the north and Kunlun Mountains to the south, with the Pamir Mountains to the west and Gobi Desert to the east. China has undertaken large-scale vegetation and tree planting along its margins to combat desertification and stabilise shifting sands.
- The Indian Council of World Affairs (ICWA) was established in 1943 by eminent intellectuals led by Sir T.B. Sapru and Dr. H.N. Kunzru as a non-official, non-political and non-profit think tank to develop an Indian perspective on international relations and foreign policy. Registered under the Societies Registration Act, 1860, ICWA was declared an institution of national importance by an Act of Parliament in 2001. The Vice-President of India is the ex-officio President of ICWA, headquartered at Sapru House, New Delhi.
- Indian para-shooters Millie Shah and Rakesh Nidagundi won team medals at the Changwon 2026 WSPS World Championships in South Korea on 16 September 2026.
- The Swachhata Hi Seva 2026 campaign began across India on 17 September 2026 and will continue for one month until 17 October 2026. The campaign is jointly organised by the Department of Drinking Water and Sanitation under the Ministry of Jal Shakti and the Department of Urban Development under the Ministry of Housing and Urban Affairs. The 2026 theme is "Swachhata Mein Sahbhag; Swachh Bharat, Viksit Bharat".

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19-09-2026

1. Indravati Tiger Reserve:

Context: The Indravati Tiger Reserve in the Bastar region of Chhattisgarh will reopen to tourists on November 1, allowing organised wildlife tourism in one of the state's most remote and least-explored forests for the first time in four decades.

About Indravati Tiger Reserve:

- **Location:** Located in Chhattisgarh and forms part of the Indravati landscape along with Bhairamgarh and Pamed Wildlife Sanctuaries.
- **Connectivity:** Ecological connectivity with Kawal Tiger Reserve (Telangana), Tadoba-Andhari Tiger Reserve (Maharashtra), and Kanha Tiger Reserve (Madhya Pradesh).
- **River:** The Indravati River forms the northern and western boundary and also marks the Chhattisgarh–Maharashtra interstate boundary.
- **Vegetation:** Major forest types include Southern Moist Mixed Deciduous Forests (with and without teak) and Southern Dry Mixed Deciduous Forests.
- **Flora:** Important species include teak, achar, karra, kullu, shisham, semal, haldu, arjun, bel and jamun.
- **Fauna:** Notable for one of the last populations of the rare wild buffalo, the state animal of Chhattisgarh; also supports tiger, leopard, gaur, sambar, chital, nilgai, blackbuck and sloth bear.

2. Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY):

Context: The Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) has been framed in the national interest to provide for the welfare of mining-affected areas with a minimum standard of social and physical infrastructure to people.

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About Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY):

- **Launched:** In 2015 to promote the welfare and development of mining-affected areas and people using District Mineral Foundation (DMF) funds.
- **Key objective:** Implement developmental and welfare projects in mining areas, supplementing existing Central and State government schemes.
- **Environmental & social focus:** Minimize adverse impacts of mining on environment, health and socio-economic conditions during and after mining.
- **Livelihoods:** Promote long-term sustainable livelihoods for people affected by mining activities.
- **Implementation:** Implemented by District Mineral Foundations (DMFs) of respective districts; states are required under the MMDR Act, 1957 to incorporate PMKKKY into DMF rules.
- **Fund allocation:** At least 60% for high-priority areas such as drinking water, health, education, environment and women/children welfare; up to 40% for other priorities such as infrastructure, irrigation, energy and watershed development.

3. Doppler Weather Radars:

Context: Recently, the Union Minister of State (Independent Charge) for Earth Sciences virtually inaugurated India's 51st state-of-the-art Doppler Weather Radar at Sambalpur, Odisha.

About Doppler Weather Radars:

- **Definition:** A specialized radar that uses the Doppler Effect to determine the position and velocity/movement of atmospheric targets.
- **Working:** The radar antenna emits radio waves; when they strike raindrops or other atmospheric particles, some energy is scattered back to the radar.
- **Distance measurement:** The time taken for the radio waves to travel to the target and return helps determine the distance and location of precipitation.
- **Doppler measurement:** The change in frequency of the returned signal indicates the motion/velocity of precipitation particles, helping track weather movement.
- **Common bands in India:** IMD uses S-band, C-band and X-band weather radars for different applications.

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- **Applications:** Used to monitor rainfall, thunderstorms, cloud bands and cyclones; X-band is useful for thunderstorms/lightning detection, while C-band is used for cyclone tracking, with coverage of roughly 500 km.

4. Patriot missiles:

Context: Lockheed Martin recently announced it received a shipment of critical components from General Motors for Patriot interceptors, emphasizing the urgency to ramp up production amid ongoing international conflicts.

About Patriot missiles:

- Patriot stands for Phased Array Tracking Radar for Intercept on Target and is a mobile surface-to-air missile (SAM) defence system developed in the United States.
- **Capabilities:** Depending on the interceptor, it can engage aircraft, tactical ballistic missiles and cruise missiles.
- **Combat history:** First used in the 1991 Gulf War and later during the 2003 U.S. invasion of Iraq.
- **Global use:** The system is operated by 19 countries, including the U.S., Germany, Poland, Ukraine, Japan, Qatar, Saudi Arabia and Egypt.
- **Battery components:** A Patriot battery includes phased-array radar, engagement control station, computers, power equipment and up to 8 launchers, each carrying 4 ready-to-fire missiles.
- **Radar & guidance:** Its radar has a range of over 150 km and can track up to 100 potential targets simultaneously; the system uses Track-Via-Missile (TVM) guidance.
- **Interceptors:** PAC-2 uses a blast-fragmentation warhead, while PAC-3 uses hit-to-kill technology; depending on the version, missiles can reach over 24 km altitude.

5. Bharat Vann Green Initiative:

Context: Union Finance Minister Nirmala Sitharaman inaugurated the 'Bharat Vann' green initiative at Lodhi Colony Park in Central Delhi, launching an urban afforestation drive in collaboration with the New Delhi Municipal Council (NDMC).

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About Bharat Vann Green Initiative:

- A dense urban micro-forest in Delhi developed using the Miyawaki afforestation method, with high-density planting of native, multi-layered vegetation.
- **Implementation & Funding:** Implemented by NDMC, funded under the CSR initiative of IIFCL and executed by the Enviro Creators Foundation.
- **Key Features:** Over 10,000 saplings of 76 native species are being planted across about 1 acre, including trees, shrubs and flowering plants.
- **Environmental Goals:** Aims to promote urban ecological restoration, reduce particulate pollution and mitigate the urban heat-island effect through dense vegetation and evaporative cooling.
- **Community Participation:** Integrates 'Ek Ped Maa Ke Naam', involving schoolchildren and women's self-help groups in plantation and long-term care of saplings.
- **Wellness & Maintenance:** Includes walking tracks, yoga, pranayama and meditation spaces, with a 36-month maintenance programme to ensure high sapling survival and eventual self-sustainability.

Quick Bites:

- The 25th Meeting of Ministers of the Shanghai Cooperation Organization (SCO) Member States Responsible for Foreign Economic and Trade Activities was held in Dushanbe, Tajikistan, on 17 September 2026.
- 'Steel Cutting' ceremony of the second ship of the Next Generation Missile Vessel (NGMV) project was held at Cochin Shipyard Limited (CSL), Kochi on 17 Sep 2026. The NGMVs are planned to be installed with state-of-the-art weapon and sensors, which would significantly enhance the combat capabilities of the Indian Navy as a 'Future Ready and Combat Ready Force'. The construction of the ships reinforces India's commitment to build a strong and modern Navy, capable of operating in the complex maritime environment of the Indian Ocean Region.
- Fiji Declares National HIV Emergency after a sharp rise in HIV infections, prompting the government to expand testing, treatment and prevention measures. The development has brought renewed attention to the growing HIV burden in the Pacific island nation and the gaps in diagnosis and treatment

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- Leopardus tilcayo is a newly identified tiger cat species from Bolivia, reportedly the first new cat species identified there in over a century. It was found in the Yungas cloud forests, a humid mountainous region of South America. Locally called Tilcayo, it is a small feline of the genus Leopardus, measuring about 46 cm and weighing around 1.4 kg, with light-brown fur and irregular rosettes.
- Ladakh inaugurated twin flower fields at Choglamsar and Stakna in Leh on 17 September 2026. The fields stand at 10,600 feet, or about 3,265 metres, and are described as the world's highest-altitude flower fields.
- Astronomers have confirmed Elias 2-24 b as the youngest known planet, with an estimated age of less than 1 million years as of 17 September 2026. The planet orbits Elias 2-24, a star located about 450 light-years from Earth, and it remains embedded in the dusty gas-and-debris disk from which it formed.
- Manu Bhaker and Tajinderpal Singh Toor were named India's flag-bearers for the Asian Games opening ceremony on 18 September 2026.
- The Film Federation of India selected the Marathi-language film Gondhal as India's official entry for the Best International Feature Film category at the 99th Academy Awards. The announcement was made on 18 September 2026, and the film was chosen from a list of 33 films considered for the national entry.
- The Karnataka Cabinet has decided to grant additional official language status to Tulu in Dakshina Kannada and Udupi districts, addressing a long-standing demand in coastal Karnataka. The status will apply to administrative matters, with the State government allocating ₹82 lakh annually for translation, training and promotion of Tulu language usage.

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20-09-2026

1. Kavach Version 4.0:

Context: In a significant step towards strengthening railway safety through indigenous technology, Indian Railways has approved the provision of Kavach Version 4.0 on 607.7 Route Kilometres of the Lucknow Division of North Eastern Railway at a total cost of ₹252 crore.

About Kavach Version 4.0:

- Kavach is an indigenously developed Automatic Train Protection (ATP) system.
- Kavach aids the Loco Pilot in running of trains within specified speed limits by automatic application of brakes in case Loco Pilot fails to do so and also helps the trains to run safely during inclement weather.
- It is certified with the highest railway safety standard, Safety Integrity Level-4 (SIL-4), which means it has an extremely high reliability in preventing accidents.
- Kavach was adopted as the National ATP system in July, 2020.
- It is developed by the Research Design and Standards Organisation (RDSO).

2. Gandhi Sagar Wildlife Sanctuary:

Context: As Project Cheetah completes four years, Gandhi Sagar Wildlife Sanctuary is awaiting the arrival of a fourth African cheetah, with a South African female or a younger Botswana female likely to be translocated from Kuno National Park in the coming days.

About Gandhi Sagar Wildlife Sanctuary:

- **Location:** Situated in northwestern Madhya Pradesh, bordering Rajasthan; notified as a sanctuary in 1974 and spread over 368 sq. km.
- **Rivers & Reservoir:** The Chambal River flows through the sanctuary, dividing it into two parts, while the Gandhi Sagar Dam forms a large reservoir in the region.

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- **Historical Significance:** Contains important sites such as Chaurasigarh, Chaturbhujnath Temple, Bhadkaji rock paintings, Hinglajgarh Fort and Taxakeshwar Temple.
- **Topography:** Dominated by open landscapes, sparse vegetation and rocky terrain, with small patches of dense forest.
- **Flora:** Part of the Khathiar-Gir dry deciduous forest ecoregion; major species include Khair, Salai, Kardhai, Dhawda, Tendu and Palash.
- **Fauna:** Supports Chinkara, Nilgai, Spotted Deer, Indian Leopard, Striped Hyena and Jackal.
- **Conservation Importance:** Selected as a favourable site for cheetah reintroduction in India and designated an Important Bird and Biodiversity Area (IBA).

3. Bhil Tribe:

Context: The Rajasthan High Court recently issued notices to the State government and other authorities on a petition seeking a 9% sub-quota for the Bhil community within the existing 12% reservation for the Scheduled Tribe (ST) category.

About Bhil Tribe:

- **Bhil Tribe:** The Bhils are among the oldest and most widely distributed tribal groups in India and constitute the largest Scheduled Tribe group according to the 2011 Census.
- **Name:** The term Bhil is derived from villu/billu, meaning bow, reflecting their traditional association with archery.
- **Distribution:** Mainly concentrated in Rajasthan, western Madhya Pradesh, Gujarat and northern Maharashtra, particularly around the Aravalli, Vindhya, Satpura and northern Western Ghats.
- **Occupation:** Primarily engaged in agriculture; while some practise shifting cultivation, most use plough-based cultivation.
- **Language:** They speak Bhili, an Indo-Aryan language, with strong regional influences from Rajasthani and Marathi and historical links to Gujarati.
- **Beliefs:** Their traditional religious practices have been influenced by Hinduism; they worship local deities such as Khandoba, Kanhoba, Bahiroba and Sitalmata, while some worship Vaghdev (Tiger God).

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- **Festivals:** The Baneshwar Fair, held around Shivaratri, is an important Bhil festival; Holi and Dussehra are also widely celebrated.
- **Art & Culture:** Ghoomar dance is an important folk tradition, while Bhil paintings are characterised by distinctive multicoloured dots used as filling.
- **Historical References:** Bhils find mention in ancient literature, including the Ramayana and Mahabharata, and some groups have migrated to other states for employment.

4. One Tag Facility:

Context: The National Highways Authority of India (NHAI) rolled out OneTag, a nationwide FASTag bank-portability service integrated into its official Rajmargyatra mobile application.

About One Tag Facility:

- **FASTag Portability:** A digital interoperability framework similar to Mobile Number Portability (MNP) that allows users to change FASTag issuer banks while retaining the same physical tag, Tag ID and vehicle linkage.
- **Organisations:** Developed and operationalised jointly by IHMCL and NPCI across the NETC ecosystem.
- **Porting Process:** Users initiate the request through the Rajmargyatra app, authenticate consent through an MVC/OTP, select a new participating bank and complete digital KYC.
- **NPCI Role:** NPCI updates the NETC mapper database, shifting toll-debit authorisation to the new issuer while retaining the original Tag ID.
- **No Hardware Replacement:** The existing RFID FASTag sticker remains unchanged, eliminating re-tagging and replacement-related costs.
- **Cooling-Off Period:** A mandatory six-month gap is required between consecutive portability requests.
- **Wallet Settlement**: The previous bank closes the old wallet, settles pending transactions and refunds the remaining balance/security deposits directly to the user rather than transferring the old wallet automatically.

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5. Census Town:

Context: The Ministry of Housing and Urban Affairs informed the Parliamentary Standing Committee that the four-decade-old criteria used by the Registrar General of India (RGI) to classify Census Towns are outdated and fail to capture India's actual urban transformation.

About Census Town:

- Census Town: A settlement that has urban demographic/economic characteristics but is still administratively governed as a rural settlement through Panchayati Raj institutions.
- Minimum Population: Must have at least 5,000 residents.
- Non-agricultural Employment: At least 75% of the male main working population must be engaged in non-agricultural activities.
- Population Density: Must have a density of at least 400 persons per sq. km; all three criteria must be satisfied simultaneously.

6. Greenland:

Context: The U.S., Denmark and Greenland said late on Friday they had reached an agreement for Washington to develop a significant military presence on Greenland, while prohibiting U.S. adversaries from building their own bases on the island. U.S. President Donald Trump said the deal would give Washington "permanent control" over the Arctic island's security, leaving its precise scope unclear. On Saturday, Denmark and Greenland said any agreement with the U.S. would not compromise Greenland's sovereignty. Key details of the agreement have not been made public.

About Greenland:

- World's largest island, located between the Arctic and Atlantic Oceans.
- Lies east of the Canadian Arctic Archipelago; part of the North American continent.
- Shares a 1.2 km land border with Canada on Hans Island.
- Kaffeklubben Island is the world's northernmost undisputed land point.
- Extremely low population density – least densely populated country in the world.

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- Greenland is an autonomous territory within the Kingdom of Denmark.
- It is the largest constituent part of the Kingdom; others are Denmark proper and the Faroe Islands.
- Citizens of Greenland are Danish citizens and thus EU citizens, though Greenland itself is not part of the EU.
- Capital and largest city: Nuuk.
- Greenland has its own government (Naalakkersuisut) and parliament.
- Controls most domestic affairs and public services.
- Denmark retains authority over citizenship, defence, monetary policy and foreign affairs.
- The economy is heavily dependent on Danish financial aid (over 20% of GDP).
- Rich in mineral resources, gaining importance due to melting ice from global warming.
- About 67% of electricity is generated from renewable sources, mainly hydropower.

Quick Bites:

❖ The Himalayan Monal (Lophophorus impejanus), also called Impeyan Monal or Danphe, is a large pheasant and the state bird of Uttarakhand. It shows strong sexual dimorphism, with males having colourful plumage and a metallic green crest, while females are predominantly streaky brown. It inhabits upper temperate conifer and oak forests with open grasslands, generally at 2,500–4,000 m altitude. It is distributed across the Himalayas, including J&K, Himachal Pradesh, Uttarakhand and Sikkim. A recent study in Uttarakhand found that exposure to roads, tourists and pilgrimage traffic is associated with the use of higher-frequency calls, indicating changes in its calling behaviour.

❖ The North Sea is a shallow northeastern arm of the Atlantic Ocean, located between the British Isles and northwestern Europe. It is bordered by Great Britain, Norway, Denmark, Germany, the Netherlands, Belgium and France, along with the Orkney and Shetland Islands. It connects with the Atlantic Ocean through the English Channel and with the Baltic Sea through the Kattegat and Skagerrak straits. Recently, Denmark inaugurated a carbon capture and storage (CCS) project, storing CO_2 beneath the seabed at an old oil-platform site in the North Sea.

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- Prime Minister Narendra Modi inaugurated the two-day International Conference on "The Future of Environment and Climate Dynamics" on 19 September 2026 at Vigyan Bhawan in New Delhi. The National Green Tribunal (NGT) organised the conference on 19 and 20 September 2026.
- Prime Minister Narendra Modi distributed more than 51,000 appointment letters to newly appointed youth at the 20th Rozgar Mela on 19 September 2026. Rozgar Mela is a central government recruitment drive for appointment letters issued to selected candidates for posts in Union Government departments and organisations. The initiative covers appointments in ministries such as Revenue, Railways, Home Affairs, Health and Family Welfare, Financial Services, and Defence.
- NASA expanded its Commercial Crew Transportation Capability (CCtCap) contract with SpaceX on 18 September 2026 through a 946 million modification. The revised agreement adds three more crewed Dragon flights, named Crew-15, Crew-16 and Crew-17, for missions to the International Space Station (ISS).
- The Ministry of Earth Sciences on Saturday launched the pilot phase of the National Initiative for Remediation of Marine Litter (NIRMaL Sāgar), India's first integrated marine litter tracking framework, in Visakhapatnam aimed at combating coastal and ocean pollution. Inaugurated at the Andhra University Auditorium near RK Beach, the launch marked the culmination of the week-long Swachh Sagar Surakshit Sagar 5.0 campaign.

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21-09-2026

1. Battery Energy Storage System (BESS) project:

Context: NTPC Ltd recently terminated a ₹ 413.37 crore contract awarded to GR Infraprojects Ltd (GRIL) for a 400 MWh Battery Energy Storage System (BESS) project at its Mouda Super Thermal Power Station in Maharashtra.

About Battery Energy Storage System (BESS) project:

- Battery Energy Storage System (BESS) stores electrical energy in rechargeable batteries and releases it when required.
- A complete BESS includes battery cells/modules, Battery Management System (BMS), Power Conversion System (PCS/inverter), thermal management, control-monitoring system and an enclosure.
- It can store electricity from the grid, solar, wind or other generation sources, and discharge it when demand or power prices are high.
- BESS is useful during power outages, peak-demand periods and renewable-generation dips, providing greater flexibility in electricity use.
- Major applications include peak shaving, load shifting, backup power, renewable-energy integration, microgrids and improving grid reliability.
- By storing electricity when supply is abundant or demand is low, BESS can reduce grid stress and improve energy economics.
- BESS is mainly rated by energy capacity (kWh), which indicates how much energy it can store, and power rating (kW), which indicates how quickly it can deliver that energy.

2. Bidriware:

Context: Recently, it was observed that Bidriware, the centuries-old metal craft, is facing fresh pressure from the rising prices of silver, copper, and zinc.

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About Bidriware:

- Bidriware is a traditional metal handicraft from Bidar district, Karnataka, known for intricate handcrafted designs and has a GI tag.
- Its origin is mainly associated with the Bahamani Sultans of the 14th–15th centuries, with influences from Turkish, Persian, Arabic and local Indian styles.
- The craft uses a zinc–copper alloy as the base metal, with pure silver used for decorative inlay work.
- Artisans engrave delicate floral and geometric patterns on the metal surface using small chisels.
- Fine silver wires or flattened strips are hammered into the engraved grooves to create the characteristic inlay designs.
- The distinctive deep-black lustre is produced using soil from the historic Bidar Fort, which is applied with a chemical solution during the final stage.
- Finally, the finished product is buffed and polished to smoothen the surface and enhance its distinctive appearance.

3. Naegleria fowleri:

Context: Scientists have figured out how Naegleria fowleri amoebae go from the nose to the brain, with N. gruberi as a proxy.

About Naegleria fowleri:

- Brain-eating amoeba refers to Naegleria fowleri, a free-living, single-celled organism found in warm freshwater and soil.
- It is commonly found in warm lakes, rivers, ponds, hot springs, and contaminated soil across the world.
- Among free-living amoebae, three medically important species are: Acanthamoeba – causes Granulomatous Amoebic Encephalitis (GAE), Naegleria fowleri – causes Primary Amoebic Meningoencephalitis (PAM) and Balamuthia mandrillaris – causes severe brain infections.
- Primary Amoebic Meningoencephalitis (PAM) is a rare but highly fatal infection of the brain and its surrounding membranes.

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- Infection occurs when contaminated water enters the nose, usually during swimming, diving, or water-related activities.
- After entering through the nose, the amoeba travels along the olfactory nerve to the brain, where it destroys brain tissue and causes severe inflammation.
- The disease is called "brain-eating amoeba infection" because it rapidly damages and destroys brain tissue.
- Drinking contaminated water does not cause infection, as the amoeba must enter through the nasal passage.
- PAM is non-communicable and does not spread from one person to another.
- Early symptoms include headache, fever, nausea, and vomiting.
- Advanced symptoms include stiff neck, confusion, seizures, hallucinations, coma, and rapid neurological deterioration.
- PAM has an extremely high fatality rate, and currently there is no consistently effective treatment, making early prevention and awareness crucial.

4. Biligiri Ranganatha Swamy Temple (BRT) Tiger Reserve:

Context: Authorities of the BRT Tiger Reserve are seeking immediate action on fallow lands, warning that these neglected plots are turning into suitable habitats for big cats and increasing risks in fringe villages.

About Biligiri Ranganatha Swamy Temple (BRT) Tiger Reserve:

- **Location & Area:** Located in the BR Hills of Chamarajanagar district, Karnataka, covering about 574.82 sq. km at an elevation of around 5,091 ft.
- **Name & Significance:** Biligiri means “white rocky cliff”, associated with the ancient Rangaswamy Temple dedicated to Lord Vishnu. The hills are also associated with white mist and silvery clouds.
- **Ecological Corridor:** It forms an important wildlife corridor between the Eastern and Western Ghats, facilitating movement and gene flow between wildlife populations.
- **Soliga Community:** The reserve is home to the Soliga indigenous community, which has lived in the hills for centuries. Soligas were the first tribal community living inside a tiger reserve to have their forest rights recognised by a court in 2011.

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- **Vegetation & Flora:** Habitats range from dry scrub and dry deciduous forests to evergreen forests and high-altitude shola grasslands. Important trees include Anogeissus latifolia, Dalbergia paniculata and several Terminalia species.
- **Fauna:** It supports tiger, elephant, leopard, dhole (wild dog), gaur, sambar, spotted deer, four-horned antelope, sloth bear, wild boar, langur and bonnet macaque, along with diverse reptiles and birds.

5. Tejas aircraft:

Context: Air Chief Marshal Amar Preet Singh, Chief of the Air Staff, said on Sunday that the Tejas sortie flown by Japan Air Self-Defense Force (JASDF) Chief of Staff General Takehiro Morita was a "very clear example" of the "faith and trust" on the "homegrown aircraft".

About Tejas aircraft:

- LCA Tejas is a 4.5-generation, single-seat, supersonic multirole fighter aircraft developed indigenously by India.
- **Development:** Designed by the Aeronautical Development Agency (ADA), DRDO, under the LCA programme, with HAL as the prime industrial contractor.
- **Background:** The LCA programme was conceived in the late 1980s to replace the ageing MiG-21 and Su-7 fleets. Tejas entered IAF service in July 2016.
- **Indigenous significance:** It is India's second indigenous fighter aircraft, after the HAL HF-24 Marut.
- **Roles:** Designed for offensive air support, close combat and ground-attack missions, with three major variants—Tejas Mk1, Mk1A and trainer.
- **Key features:** It is among the smallest and lightest contemporary supersonic combat aircraft, with a tailless configuration with a single fin. It has an approximate empty weight of 5,450 kg and maximum take-off weight of 13,500 kg.
- **Power & weapons:** Powered by a single General Electric F404-GE-IN20 engine and capable of carrying various air-to-air, air-to-surface and precision-guided weapons.

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Quick Bites:

- The 13th edition of the Sri Lanka-India bilateral maritime exercise, SLINEX-26, is being conducted at Visakhapatnam from 17 to 21 Sep 26. The exercise commenced with the Harbour Phase, which will be followed by the Sea Phase. INS Kavaratti, an indigenous Anti-Submarine Warfare Corvette, and INS Jyoti, the Fleet Tanker, will participate from the Indian Navy, while SLNS Sindurala represents the Sri Lanka Navy.
- India has been ranked first in business climate among 41 global markets in the Global Business Climate Survey 2026, conducted by Business Sweden, the Swedish Chamber of Commerce in India and Sweden's diplomatic missions. First conducted in 2020, the survey captures the experiences and perceptions of Swedish business leaders regarding overseas markets and covers regions including Western Europe, APAC, MEA+ and the Americas.
- The Giant African Snail (Lissachatina fulica) is one of the world's most damaging invasive species, native to East Africa and introduced to other regions through the pet trade, as a food resource and accidental movement. It is a large land snail that can damage crops and vegetation. Recently, the Kerala Agricultural University (KAU) launched a special project to eradicate it following a request from the Kerala Agriculture Department.
- The Geran-2 is a Russian long-range one-way attack drone, widely described as a domestically produced version of Iran's Shahed-136. It is primarily used for long-range strikes and serves as a relatively low-cost complement to more sophisticated cruise and ballistic missiles. Recent satellite imagery indicates expanding Geran-2 production facilities at the Alabuga Special Economic Zone in Tatarstan, Russia.
- The Vallur Thermal Power Project is a 1,500 MW coal-fired power plant in Tiruvallur district, Tamil Nadu, comprising three 500 MW units. It was developed by NTPC Tamil Nadu Energy Company Ltd. (NTECL), a 50:50 joint venture between NTPC and Tamil Nadu Power Generation Corporation Ltd. (TNPGCL), and has been fully operational since 2015. Recently, the Southern Bench of the NGT admitted an application alleging that the project was discharging hot effluent into the Kosasthalaiyar River and its backwaters, allegedly violating environmental and CRZ clearances.
- Assam Chief Minister Himanta Biswa Sarma on Sunday laid the foundation stone for the Adani Group's 3,200 megawatt Ultra-Supercritical Thermal Power Plant at Chapar in Dhubri district of Assam. The

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₹48,000-crore project, handled by Adani Power Limited, will be the largest power plant in the northeastern region.

- Indian Army's military dogs, including indigenous Rampur Hounds, are showcasing their specialised operational skills alongside U.S. Army personnel during the ongoing India-U.S. bilateral exercise Yudh Abhyas 2026. According to the Indian Army, four Army Canines – Rampur Hounds Victor and Rowdy, Belgian Malinois Zac and Labrador Retriever Rice are participating in the exercise, demonstrating their capabilities in room intervention and rappelling drills as part of the professional exchanges with the U.S. Army. Rampur Hounds are increasingly being inducted for specialised military roles. Its participation in the exercise highlights Army's efforts to employ indigenous canine breeds for operational tasks.

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22-09-2026

1. World Wide Fund for Nature (WWF):

Context: Union Minister for Environment, Forest and Climate Change, Shri Bhupender Yadav, today inaugurated the Global Conservation Conference of the World Wide Fund for Nature (WWF) at Jaipur.

About World Wide Fund for Nature (WWF):

- **Establishment:** The World Wide Fund for Nature (WWF) was established in 1961 and has grown into a major global environmental organisation working in 100+ countries.
- **Headquarters:** WWF's headquarters is located in Gland, Switzerland.
- **Core objective:** It focuses on conservation of biodiversity, endangered species and natural ecosystems, while promoting sustainable use of natural resources.
- **Environmental priorities:** WWF works on climate change, pollution reduction, forest conservation, freshwater conservation and protection of marine ecosystems.
- **Sustainable development:** It promotes sustainable living and development by seeking to balance economic activities with environmental protection.
- **Awareness:** It conducts environmental education and awareness campaigns, including Earth Hour, to encourage public participation in conservation.
- **WWF-India:** Established in November 1969 as a charitable public trust, WWF-India works to conserve India's natural heritage and ecological diversity, with its national secretariat in New Delhi.

2. Khejri trees:

Context: Recently, Lok Sabha Speaker has paid respects to Amrita Devi Bishnoi and all the martyrs who laid down their lives for the protection of Khejri trees in Khejadli village of Rajasthan during the 18th century.

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About Khejri trees:

- **Scientific name:** Khejri is scientifically known as Prosopis cineraria and is regarded as a sacred tree in Rajasthan and the state tree of Rajasthan.
- **Other names:** It is locally called Jant/Janti, particularly in parts of Rajasthan such as Alwar, Sikar and Jhunjhunu.
- **Distribution:** It occurs mainly in the arid and semi-arid regions of Rajasthan, Gujarat, Haryana, Punjab and Delhi, besides parts of southern India.
- **Adaptability:** Khejri is highly drought- and frost-resistant, tolerating extreme temperatures and growing in areas receiving only about 100–600 mm rainfall.
- **Characteristics:** It is a deciduous tree with finely divided, feathery leaves and small yellow flowers, well adapted to dry and sandy soils.
- **Ecological role:** As a nitrogen-fixing tree, it improves soil fertility and plays an important role in maintaining the ecosystem of arid regions, particularly the Thar Desert.
- **Economic importance:** Its nutritious leaves provide fodder for livestock, while its pods are used as vegetables and to prepare the popular Rajasthani dish Sangri.
- **Medicinal and cultural value:** Its bark has medicinal uses, while the tree's cultural importance and ability to survive harsh desert conditions make it an important species for desert ecology and local livelihoods.

3. Neodymium-Iron-Boron (NdFeB):

Context: Neodymium-Iron-Boron (NdFeB) magnets have become the backbone of energy transition and advanced manufacturing.

About Neodymium-Iron-Boron (NdFeB):

- **Composition:** NdFeB magnets are rare-earth permanent magnets made primarily from neodymium (Nd), iron (Fe) and boron (B). Their main magnetic phase is $Nd_2Fe_{14}B$ with a tetragonal crystal structure.
- **Magnetic strength:** Developed in the early 1980s, they are the strongest commercially available permanent magnets, offering high magnetic energy density, coercivity and remanence in a compact size.

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- **Typical composition:** They generally contain about 29–32.5% neodymium, 64–69% iron and 1.1–1.2% boron.
- **High-temperature performance:** Their magnetic properties can decline at high temperatures. Dysprosium (Dy) or terbium (Tb) may be added to specialised grades to improve performance above 150°C.
- **Corrosion protection:** NdFeB magnets are susceptible to corrosion, so protective coatings are required; a common coating is nickel–copper–nickel (Ni-Cu-Ni) triple-layer plating.
- **Applications:** They are widely used in electronics, electric motors, automobiles, medical devices, sensors, speakers and generators.
- **Technological significance:** Their combination of high magnetic strength and small size makes NdFeB magnets important for electric mobility, renewable-energy technologies and compact modern electronic devices.

4. AASHVAST labs:

Context: Indian Army to deploy six AASHVAST labs nationwide for mandatory drone and CCTV cybersecurity screening to counter operational vulnerabilities

About AASHVAST labs:

- AASHVAST stands for Assessment and Analysis of Electronic Systems Hardware for Vulnerabilities and Security Threats, a specialised system for testing military electronics.
- It is developed by a private firm for the Directorate General of Electronics and Mechanical Engineering (DG EME).
- It can detect around 14 types of vulnerabilities in defence electronic systems and help neutralise threats that could disrupt Indian drones and other platforms.
- The lab examines both hardware and software, including drones, communication systems, sensors and other defence equipment, with a focus on firmware-level vulnerabilities.
- It tests location-based security, including how UAVs respond to GPS spoofing and jamming by adversaries.
- It can identify hidden passwords, embedded encryption keys and remote-access tools, and verify whether systems accept only authorised software updates.

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- **Significance:** AASHVAST strengthens the cybersecurity, reliability and resilience of India's military electronics against hidden vulnerabilities and evolving cyber threats.

5. Sulphur:

Context: Soaring prices of sulphur which is again linked to the escalating West Asia and Russia-Ukraine conflicts – is impacting the availability of di-ammonium phosphate (DAP), single super phosphate (SSP) and other major complex fertilisers in India.

About Sulphur:

- Sulphur (S) is a non-metallic chemical element, occurring naturally as elemental sulphur and in sulphide and sulphate minerals; it is among the relatively abundant elements in Earth's crust.
- In pure form, it is a pale-yellow, brittle, tasteless and odourless solid, a poor conductor of electricity and insoluble in water.
- Sulphur reacts directly with most elements, with notable exceptions including gold, platinum and noble gases.
- In India, important occurrences are reported from Puga Valley (Jammu & Kashmir), Barren Island, Andhra Pradesh, Kerala and Himachal Pradesh.
- Its most important industrial use is production of sulphuric acid, which is used in fertiliser manufacture, ore processing, petroleum refining, wastewater treatment and chemical synthesis.
- Powdered sulphur is used in rubber vulcanisation, agricultural dusts, pharmaceuticals and animal feed.
- Sulphur and its compounds are also used in sulphur lamps, detergents, fungicides, dyes and agricultural chemicals.

Quick Bites:

❖ The first meeting of the Sowa-Rigpa Working Group, constituted under the Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H), was held on September 18, at PCIM&H, Ghaziabad, Uttar Pradesh. The meeting marks an important step towards the development of Sowa-Rigpa Pharmacopoeias and Formularies in India.

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- The 18th edition of the India - Mongolia Joint Military Exercise NOMADIC ELEPHANT, an annual platoon-level exercise conducted alternately in India and Mongolia, commenced today at the Foreign Training Node, Pithoragarh, Uttarakhand. The exercise is scheduled from 21 September to 03 October 2026. The last edition of the exercise was conducted at Ulaanbaatar, Mongolia, in May–June 2025. The Indian Army and the Mongolian Armed Forces are represented by 45 personnel each.
- As part of the Indian Navy's Operational Deployment, Indian Naval Ships Sahyadri and Kulish arrived at Subic Bay, Philippines, on 20 Sep 2026 to participate in the ASEAN Defence Ministers' Meeting (ADMM)-Plus Joint Cooperation Activity (JCA). The ADMM-Plus JCA brings together maritime forces from ASEAN Member States and eight Plus countries for professional and operational engagements aimed at enhancing interoperability, fostering mutual understanding and strengthening cooperation in the maritime domain.
- Ophiopogon japonicus is an evergreen perennial herb, commonly called dwarf lilyturf or mondo grass, recently recorded in the wild in Arunachal Pradesh for the first time by researchers from WII, Dehradun and Uluberia Botanical Institute Herbarium. It belongs to the genus Ophiopogon, which has about 85 species globally, with seven previously recorded in India. Native to East Asia, it grows mainly in subtropical regions at 200–2,800 m elevation and has narrow grass-like leaves, pale flowers and blue berry-like fruits. Its tuberous roots, known as Ophiopogonis Radix (Maidong), have long been used in traditional Chinese medicine.
- Nevados de Chillán is a large composite stratovolcanic complex in the Southern Volcanic Zone of the Chilean Andes, and one of the most active volcanoes in Chile's Ñuble Region. It consists of three overlapping peaks—Cerro Blanco (3,212 m), Volcán Nuevo and Volcán Viejo (3,089 m). Its eruptions have been documented since the 17th century, with geological evidence indicating much older activity. The volcano is particularly known for lava-dome growth, explosive eruptions and pyroclastic activity.
- Painganga Wildlife Sanctuary is located in Yavatmal district, Maharashtra, covering about 325 sq km. It is named after the Painganga (Penganaga) River, a tributary of the Wardha River, which borders the sanctuary on three sides. The sanctuary is characterised by basaltic rock formations and contains several ancient rock shelters with petroglyphs, offering evidence of prehistoric human activity. Recently, a young tigress was introduced as the third tiger in an ongoing tiger conservation and population-establishment programme.

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- The Damodar River is a major river of eastern India, flowing through Jharkhand and West Bengal and joining the Hooghly River at Shayampur. Originating in the Palamau Hills of the Chota Nagpur Plateau, it flows for about 592 km and is known as the "Sorrow of Bengal" due to its historical floods. Its basin is an important mineral and industrial region, traversing major Gondwana coalfields such as Jharia, Raniganj and Bokaro. The river has several tributaries, including the Barakar and Konar, and has recently attracted attention because hilsa fish are being frequently found upstream in the Damodar, a phenomenon experts are yet to fully explain.
- The 9th India International Water Week (IIWW) 2026 will be inaugurated by Vice-President C. P. Radhakrishnan on 22 September 2026 at the Plenary Hall of Bharat Mandapam, Pragati Maidan, New Delhi. The five-day conference will be held from 22 to 26 September 2026 with the theme "Climate Resilient Water Management".
- Suchika Tariyal won India's first-ever Asian Games medal in mixed martial arts on 21 September 2026. She secured a bronze medal in the women's traditional -60 kg category at the Aichi-Nagoya Asian Games 2026, where MMA featured as a medal sport for the first time.
- The Defence Research and Development Organisation (DRDO) is developing a 30 kW-class directed-energy weapon (DEW) under the Integrated Drone Detection and Interdiction System (IDD&IS) Mk-IIA. The system is designed to counter drone swarms, fixed-wing unmanned aerial vehicles (UAVs), and surveillance sensors.
- The foundation stone for the Indian Space Research Organisation's Advanced Radar Research Centre was laid at Chandrapur near Guwahati in Assam on 21 September 2026. The centre is being developed under Project NETRA, which stands for Network for Space Object Tracking and Analysis, and it is linked to India's space situational awareness framework. Project NETRA is ISRO's programme for space object tracking and analysis. The project covers detection of satellites, debris, and other objects in orbit, along with orbit determination and collision-avoidance support.
- A three-year-old female cheetah named CCB-2, originally from Botswana, was released into a protected enclosure at Gandhi Sagar Wildlife Sanctuary in Madhya Pradesh on 20 September 2026. Madhya Pradesh Chief Minister Mohan Yadav renamed the cheetah "Radha" during the release, which coincided with Radha Ashtami.

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- Gwalior in Madhya Pradesh is set to host Asia's first Telecom Manufacturing Zone (TMZ) with an estimated investment of ₹5,500 crore. The project has received investment proposals from 24 companies and is projected to create more than 18,000 direct jobs.
- India launched the Biovigilance Programme of India (BvPI) in New Delhi on 21 September 2026. The programme was announced during the 6th National Pharmacovigilance Week and is linked to patient safety in the use of medicines and biological products. Biovigilance is a safety-monitoring system for adverse reactions associated with biological products. In the Indian context, the programme covers medicines and biological products used in organ and tissue transplants.
- Premier Energies commissioned a 7 GW N-type TOPCon G12R solar cell manufacturing facility at Naidupeta in Andhra Pradesh on 21 September 2026. The plant increased the company's total solar cell manufacturing capacity to 10.6 GW, which is the highest solar cell capacity in India.
- The Free Trade Agreement (FTA) between India and New Zealand that was ratified on Monday and comes into effect on October 20 aims at doubling bilateral trade to ₹35,000 crore in the "next four to five years", according to Union Commerce Minister Piyush Goyal.
- A diminutive wild cat that inhabits Bolivia's cloud forest has been identified as a previously unknown species, marking the first time a new living cat species has been formally named and described in more than a century. The cat, called Tilcayo by local communities, is part of a group called tiger cats found across much of South America. It was found in Bolivia's lush Yungas forest, a mountainous region where forests are often covered by clouds and surrounded by high humidity, according to researchers. It measures about 46 cm long and weighs around 1.4 kg, making it smaller than the average domestic cat.

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23-09-2026

1. Visegrád Group:

Context: Recently, the four members of the Visegrád Group backed India's bid for a permanent seat on the UN Security Council at their first foreign ministers' meeting with India.

About Visegrád Group:

- **Visegrád Group (V4):** The Visegrád Group, also called the Visegrád Four, is a cultural and political alliance established in 1991.
- **Member Countries:** It comprises Czech Republic, Hungary, Poland and Slovakia.
- **Formation:** It originated when leaders of Poland, Czechoslovakia and Hungary met at Visegrád, Hungary, to promote cooperation following the Warsaw Pact era. After Czechoslovakia split in 1993, it became the V4.
- **Objectives:** It promotes cooperation in military, economic, cultural and energy matters.
- **Working Mechanism:** The V4 is an informal intergovernmental forum whose decisions are made by consensus. It has no permanent institutional structure.
- **Presidency & V4+:** Its presidency rotates annually, setting the meeting agenda. It also cooperates with EU and non-EU countries through "V4+" formats.

2. Outer space treaty:

Context: US President Donald Trump recently posted 'The Moon Is Ours' on Truth Social, but the 1967 Outer Space Treaty rules out any country owning lunar territory.

About Outer space treaty:

- **Outer Space Treaty (OST):** Formally called the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, it is a foundational instrument of international space law.

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- **Background & Purpose:** Adopted during the Cold War in 1967, it emerged amid concerns over the militarisation of space and aims to ensure the peaceful exploration and use of outer space.
- **Parties:** The US, UK and Soviet Union were the first signatories. The treaty has 115 States Parties, including major space powers such as India and China, along with additional signatory states.
- **Freedom** of Exploration: Outer space is free for exploration and use by all states, and activities should benefit and serve the interests of all countries.
- **No National Appropriation:** No state can claim sovereignty over outer space or celestial bodies through occupation, use or any other means.
- **Weapons & Peaceful Use:** States cannot place nuclear weapons or other WMDs in orbit or on celestial bodies. The Moon and other celestial bodies are to be used exclusively for peaceful purposes.
- **State Responsibility & Liability:** States are responsible for space activities conducted by both governmental and non-governmental entities and are liable for damage caused by their space objects.
- **Astronauts & Environment:** Astronauts are regarded as "envoys of mankind", while states must avoid harmful contamination of outer space and celestial bodies.

3. Scrub typhus:

Context: The recent death of an Anna University student at Government Kilpauk Medical College Hospital (KMCH) due to scrub typhus, has once again brought this bacterial infection to the fore.

About Scrub typhus:

- **Cause:** Scrub typhus is a bacterial infection caused by Orientia tsutsugamushi.
- **Transmission:** It spreads through the bite of infected larval mites (chiggers) and is not directly contagious between people.
- **Symptoms:** Symptoms generally appear within 10 days and include fever, chills, headache, body and muscle pain, rash, enlarged lymph nodes and sometimes an eschar (dark scab-like lesion) at the bite site.
- **Severe Complications:** Untreated infection can cause serious complications such as ARDS, shock, meningitis and kidney failure.

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- **Treatment:** Early treatment is important; doxycycline or azithromycin are commonly used antibiotics. There is currently no vaccine for scrub typhus.
- **Epidemic Typhus:** Caused by Rickettsia prowazekii and transmitted through infected body lice.
- **Other Typhus:** Murine typhus is caused by Rickettsia typhi and transmitted by fleas, mainly in tropical and subtropical regions.

4. Sea of Japan:

Context: Recently, it was reported that North Korea fired two missiles into the Sea of Japan with the launches taking place within hours of each other.

About Sea of Japan:

- **Location:** The Sea of Japan (East Sea) is a marginal sea of the western Pacific Ocean, bounded by Russia and Sakhalin in the north, North Korea in the west, South Korea in the southwest, and the Japanese archipelago in the east and south.
- **Connections:** It connects with the East China Sea through the Tsushima and Korea Straits, the Sea of Okhotsk through the La Perouse and Tatar Straits, and the Pacific Ocean through the Tsugaru Strait.
- **Deepest Point:** Dohoku Seamount, an underwater volcanic feature, is identified as its deepest point.
- **Climate & Productivity:** Its relatively warm waters contribute to Japan's mild climate, while high dissolved oxygen levels support high biological productivity.
- **Tides:** Like the Mediterranean Sea, it experiences very limited tidal variation because it is almost enclosed from the Pacific Ocean.
- **Major Ports:** Important ports include Vladivostok and Nakhodka in Russia, Hamhung and Wonsan in North Korea, and Niigata and Maizuru in Japan.

5. Rajya Sabha election:

Context: The Election Commission on Tuesday announced that elections to 12 Rajya Sabha seats across Uttar Pradesh, Uttarakhand, and West Bengal would be held on October 16. The polls will be held for 10

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seats from Uttar Pradesh and one from Uttarakhand, where the terms of the sitting members in the Upper House end on November 25.

Election process:

- **Election Method:** Lok Sabha members are directly elected, while Rajya Sabha members are generally indirectly elected by elected MLAs of the respective State Legislative Assemblies.
- **State Representation:** The number of Rajya Sabha seats allocated to a state is broadly based on its population.
- **Voting System:** Rajya Sabha elections use proportional representation through the Single Transferable Vote (STV) system.
- **Preference Voting:** MLAs do not vote separately for each seat. They rank candidates by preference as 1, 2, 3, etc. on a single ballot.
- **Open Ballot:** The voting is through an open ballot. MLAs of political parties must show their ballot to an authorised party agent; failure to do so makes the vote invalid. Independent MLAs cannot show their ballots to anyone.
- **First Preference:** The candidate receiving a qualifying number of first-preference votes is elected. Each MLA's vote initially counts as one first-preference vote.
- **Transfer of Votes:** When a candidate is elected or eliminated, surplus or remaining votes are transferred to the next preferences, with transferred votes having a reduced value where applicable.
- **Winning Quota:** A candidate must obtain a prescribed quota of votes to win. For a single vacancy, the quota is generally [Total valid votes ÷ (Seats + 1)] + 1.
- **Multiple Vacancies:** When multiple Rajya Sabha seats are being filled, the quota is calculated as [(Total valid votes × 100) ÷ (Vacancies + 1)] + 1.

Quick Bites:

❖ Vice-President of India, Shri C. P. Radhakrishnan, today inaugurated the 9th India International Water Week (IIWW) 2026 at Bharat Mandapam, New Delhi. The five-day event, being organised by the Ministry of Jal Shakti from September 22 to 26, is centred on the theme “Climate Resilient Water Management.”

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- World Rhino Day 2026 was observed on Tuesday, September 22, 2026, with the official theme "Keep the Five Alive."
- 11th Ayurveda Day to be Celebrated Across India and Worldwide on 23 September. The Ministry of Ayush will host the 11th Ayurveda Day celebrations tomorrow in Nagpur under the theme “Ayurveda for a Healthier Tomorrow”. Ayurveda institutions, practitioners and stakeholders will participate in the celebrations across India and worldwide.
- The bilateral air exercise ‘Veer Guardian 2026' between the Indian Air Force (IAF) and Japan Air Self Defense Force (JASDF) concluded at Air Force Station Jodhpur on 22 September 2026. The exercise served as a vital platform for enhancing interoperability and strengthening the strategic partnership between the two Air Forces. The IAF deployed a mix of aircraft, including Su-30 MKI, Rafale, and indigenous Light Combat Aircraft (LCA) Tejas. The JASDF participated with the F-2A fighter aircraft.
- The State of Global Water Resources (SGWR) 2025 Report, published annually by the World Meteorological Organization (WMO), provides a quantitative assessment of global water resources, hydrological variability and trends. According to the report, 42% of the world’s land area experienced below-normal water storage in 2025, covering rivers, lakes, groundwater, soil moisture, snow and ice. It also highlights a persistent decline in global terrestrial water storage since 2014–16, indicating a decade-long trend. India’s groundwater levels are also declining persistently, highlighting growing concerns over groundwater depletion and water security.
- The Parbati-II Hydroelectric Project is a run-of-the-river hydropower project under construction on the Parbati River, a major tributary of the Beas, in Kullu district, Himachal Pradesh. It involves an 83.7-m-high concrete gravity dam near Pulga in the Manikaran Valley, diverting water through a 31.56-km headrace tunnel to Sainj Valley, where the powerhouse is located at Siund village. Recently, water leakage from the project flooded areas near Rella village, damaging houses and agricultural fields and forcing residents to evacuate.
- The Pilibhit Tiger Reserve (PTR) is located in Pilibhit and Lakhimpur Kheri districts of Uttar Pradesh and forms part of the Terai Arc Landscape along the India–Nepal border. The Gomti River originates in the reserve, which also serves as a catchment for rivers such as the Sharda, Chuka and Mala Khannot. The Sharda Sagar Dam, extending about 22 km, lies along its boundary. The reserve has a dry, hot climate with

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dry teak forests and Vindhyan-type soils. Recently, its tourism season was extended to November 1–June 30, allowing visitors for nearly eight months.

- The Indian Air Force (IAF) will host the second edition of the multinational air exercise Tarang Shakti at Jodhpur in Rajasthan from 26 September to 12 October 2026.
- India co-sponsored the inaugural Partners for Multilateralism (P4M) Summit at the United Nations in New York on 22 September 2026. External Affairs Minister S. Jaishankar co-chaired the summit, which was held on the margins of the 81st session of the United Nations General Assembly.
- India's first blue bond issue is scheduled for launch on 28 September 2026 by Sagarmala Finance Corporation, a state-owned maritime lender. The proposed issue size is ₹600 crore, with a greenshoe option of ₹500 crore, and the bonds have a tenor of 10 years. Blue bonds are debt instruments in which the proceeds are earmarked for projects linked to oceans, marine ecosystems, water management, and the sustainable blue economy. Such instruments are used in financing activities connected with coastal infrastructure, marine conservation, and water-related public utilities.
- The Government of India dissolved the Digital Communications Commission (DCC), an apex inter-departmental decision-making body under the Department of Telecommunications (DoT), with effect from the date of publication of a government resolution dated 19 September 2026. The Union Cabinet approved the winding up of the commission on 16 September 2026.
- The Indian women's cricket team won the gold medal at the Asian Games on 22 September 2026 by defeating Sri Lanka in the final at Korogi Sports Park in Nisshin. India won by 147 runs after scoring 216 for 3 in 20 overs and dismissing Sri Lanka for 69 in 15.4 overs.
- The Indian government has made Bureau of Indian Standards (BIS) certification mandatory for smartphone screen protectors under Indian Standard IS 19348:2025. The rule will apply from 1 April 2027 to manufacturers and importers selling screen protectors in India.

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24-09-2026

1. Dibru-Saikhowa National Park:

Context: Oxyserphus narendrani is a newly discovered species of parasitic wasp found in Dibru-Saikhowa National Park, Assam. Members of the Oxyserphus genus are extremely rare and are generally associated with high-altitude habitats. The species has a black head, brownish-black body and distinctive yellow legs, along with a single horizontal groove on the thorax, a relatively short ovipositor sheath, and a uniquely shaped wing spot.

About Dibru-Saikhowa National Park:

- **Location:** Dibru-Saikhowa National Park is located in Dibrugarh and Tinsukia districts of Assam and was originally established to conserve the habitat of the rare white-winged wood duck.
- **Rivers:** The park is bounded by the Brahmaputra and Lohit Rivers in the north and the Dibru River in the south.
- **Vegetation:** It contains moist mixed semi-evergreen and deciduous forests, canebrakes and grasslands and is known as the largest Salix swamp forest in Northeast India.
- **Flora:** Important vegetation includes Hollong, Nahor, Simul, Sissoo, Khair and Jamun, supported by its tropical monsoon climate.
- **Fauna:** The park supports Asian elephant, wild water buffalo, leopard, clouded leopard, fishing cat, jungle cat, hog deer, sambar and barking deer, among other wildlife.

2. International Mobile Equipment Identity (IMEI):

Context: India's active wireless mobile subscriber base reached 1,204.01 million in July 2026 and it brings new security challenges i.e the misuse of the International Mobile Equipment Identity (IMEI) number or IMEI tampering.

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About International Mobile Equipment Identity (IMEI):

- **IMEI:** International Mobile Equipment Identity (IMEI) is a unique 15-digit number used to identify a mobile device on a telecom network.
- **TAC:** The first 8 digits constitute the Type Allocation Code (TAC), which identifies the device model/type. The GSMA oversees global TAC allocation to manufacturers and brand owners.
- **Device identification:** Manufacturers assign unique IMEIs to individual devices. A dual-SIM phone generally has two IMEI numbers, one for each SIM slot. Users can check the number by dialling *#06#.
- **Indian registration:** Manufacturers must register IMEI numbers of applicable telecom devices with the Government before their first sale, testing, research or other use.
- **ICDR Portal:** IMEI registration in India is carried out through the Device Setu–Indian Counterfeited Device Restriction (ICDR) portal. Importers must also register applicable devices before importing them.
- **Retailers and resellers:** They must ensure that devices offered for sale have valid and untampered IMEI numbers.
- **Brand owners:** They are responsible for ensuring that devices sold under their brands comply with applicable IMEI registration and cybersecurity requirements.

3. Central Drugs Standard Control Organisation:

Context: The Central Drugs Standard Control Organisation recently called for rational, safe and responsible use of non-steroidal anti-inflammatory drugs, used commonly to relieve pain and inflammation, and antibiotics.

About Central Drugs Standard Control Organisation:

- **CDSCO:** The Central Drugs Standard Control Organisation (CDSCO) is India's National Regulatory Authority for pharmaceuticals, medical devices and cosmetics.
- **Nodal Ministry:** It functions under the Directorate General of Health Services (DGHS), Ministry of Health & Family Welfare, with headquarters in New Delhi. It is headed by the Drugs Controller General of India (DCGI).

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- **Core role:** CDSCO ensures the safety, efficacy and quality of drugs, medical devices and diagnostic kits and regulates their development, manufacturing, distribution and marketing.
- **Key functions:** It is responsible for new drug approvals, clinical trials, drug standards, quality control of imported drugs and coordination with State Drug Control Organisations.
- **Specialised products:** CDSCO, along with State regulators, jointly handles licensing of certain critical products such as blood and blood products, IV fluids, vaccines and sera.
- **Medical devices:** It oversees the import, manufacture, sale and distribution of medical devices, ensuring compliance with prescribed safety, quality and efficacy standards.

4. Organic light emitting diode technology (OLEDs):

Context: India is investigating LG Electronics and Samsung over allegations that they claimed a concessional 5% import tariff on OLED display "open cells" meant for high-end TVs, even though officials contend the concession was intended for older LCD/LED technology. The probe highlights continuing scrutiny of import-duty classification and tariff compliance for multinational electronics companies operating in India, particularly as both firms expand their OLED TV manufacturing in the country.

About Organic light emitting diode technology (OLEDs):

- OLED (Organic Light Emitting Diode) is an advanced display technology in which a carbon-based organic layer is placed between two conducting electrodes—anode and cathode.
- **Electroluminescence:** The organic material emits light when an electric current passes through it, allowing each pixel to produce its own light.
- **No Backlight:** Unlike conventional LED displays, OLED does not require a separate backlight or filters, making panels thinner, lighter and more flexible.
- **Display Quality:** OLED offers excellent colour reproduction, high contrast, wide viewing angles, high brightness and faster response times.
- **OLED vs LED:** OLED pixels are self-emissive, while LED displays generally use LEDs as a backlight; OLED displays are generally thinner, lighter and have wider viewing angles.

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- **Energy Efficiency:** OLED can be more power-efficient because individual pixels can be switched off completely, particularly when displaying dark areas.
- **Self-emissive & energy efficient:** OLED pixels generate their own light, eliminating backlights and reducing power consumption, especially for dark images.
- **Superior display performance:** Provides high contrast, brightness, wider viewing angles, wider colour range and faster refresh rates, making it suitable for high-action content and gaming.
- **Flexible & lightweight:** Thin construction allows OLEDs to be made on plastic or foil substrates, enabling foldable, rollable and stretchable displays.
- **Mobile Applications:** AMOLED technology is widely used in smartphones because of its strong colour reproduction, contrast and thin design.
- **Television Applications:** OLED TVs provide high contrast, wide viewing angles, low driving voltage and a wide colour gamut, making them suitable for premium televisions.

5. Organisation for Islamic Cooperation (OIC):

Context: India on Wednesday categorically rejected the references to Kashmir in the Joint Communique of the Contact Group on Jammu and Kashmir of the Organisation for Islamic Cooperation (OIC). The Group expressed "deep concern" about the India-Pakistan conflict of May 2025, and termed India's strikes against terror targets inside Pakistan "unlawful". The MEA said the Group will be better advised to counsel Pakistan, which "supported and sponsored terrorism".

About Organisation for Islamic Cooperation (OIC):

- OIC (Organisation of Islamic Cooperation) is the second-largest intergovernmental organisation after the UN, comprising 57 member states across four continents.
- **Established in 1969:** It was founded following the Rabat Summit in Morocco on 25 September 1969.
- **Objectives:** Seeks to preserve Islamic values, protect member states' sovereignty and independence, and promote international peace and security.
- **Collective Voice:** Acts as a collective platform for member states to safeguard their economic, social and political interests.

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- **Languages & Headquarters:** Official languages are Arabic, English and French, with headquarters in Jeddah, Saudi Arabia.
- **Main Bodies:** The Islamic Summit Conference is the supreme authority, the Council of Foreign Ministers reviews implementation of decisions, and the General Secretariat serves as the executive organ.

Quick Bites:

❖ Indian Railways has achieved a significant milestone in railway safety with the successful commissioning of KAVACH Version 4.0 for the first time on South Central Railway (SCR). The upgradation from KAVACH Version 3.2 to Version 4.0 has been successfully completed over 108 Route Kilometres on the Malkajgiri-Kamareddi section of Hyderabad Division.

❖ Emi Koussi is a large shield volcano located in the central Sahara of northern Chad, at the southeastern end of the Tibesti Mountains. Rising to 3,415 m, it is the highest mountain in both Chad and the Sahara. The volcano has a 19-km-wide, 1,219-m-deep crater with two nested calderas, including a smaller 2–3 km-wide inner caldera. A 2024 astronaut photograph captured an unusual salt patch shining like snow on its summit.

❖ Lord Howe Island is a crescent-shaped volcanic island located about 650 km off the east coast of Australia in the Tasman Sea. Discovered in 1788 and named after Admiral Lord Howe, it has two prominent peaks, Mount Gower and Mount Lidgbird, rising above 760 m at its southern end. It is also known for having the world's most southerly coral reef. A 16-year study found record levels of plastic ingestion among fledgling sable shearwaters on the island.

❖ India won its first-ever Asian Games medal in soft tennis on 23 September 2026 when Jay Meena reached the men's singles semi-finals at the Aichi-Nagoya Asian Games. His semi-final berth in the men's singles event secured at least a bronze medal for India.

❖ India has set a target to eliminate Hepatitis B and Hepatitis C as public health threats by 2030. The commitment is linked to the National Viral Hepatitis Control Programme (NVHCP), which was launched in 2018 and aligns with Sustainable Development Goal 3.3 on ending major communicable diseases. Hepatitis B and Hepatitis C are viral infections that affect the liver and can lead to chronic liver disease, cirrhosis, and liver cancer. Hepatitis B can spread from mother to child during childbirth, through infected blood, and through unsafe injections or unprotected sexual contact. Hepatitis C mainly spreads through infected blood

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and unsafe medical procedures. Hepatitis B has a vaccine, while Hepatitis C does not have a vaccine and is treated with antiviral medicines.

- The World Economic Forum's September 2026 Chief Economists' Outlook, based on an August 2026 survey, places India at the top of the global growth outlook. The survey covers expectations for growth, inflation, household incomes, and business conditions across major regions. The Chief Economists' Outlook is a periodic survey published by the World Economic Forum. It records the views of chief economists on macroeconomic trends, including growth, inflation, labour markets, and regional performance.
- Jagruti Rehabilitation Centre received the "Excellence in Clinical Services – Mental Health & Wellness" award in the National category at the ET Healthcare Awards 2026 on 11 September 2026. The award ceremony was held in New Delhi and was organised by ETHealthworld, the healthcare division of The Economic Times.
- A rare leucistic Great Cormorant was spotted at Ameenpur Lake near BHEL in Hyderabad on 19 September 2026. The bird had unusually pale feathers, while the Great Cormorants around it showed the species' usual dark plumage. The sighting was documented with photographs by Raghuvamsh Chavali, a Hyderabad-born Canadian birder. The Great Cormorant is a large waterbird belonging to the family Phalacrocoracidae. It is a fish-eating bird that is commonly seen near lakes, wetlands, rivers, estuaries, and coastal waters. The species is known for its dark plumage, long neck, hooked bill, and strong diving ability.
- The Organisation for Economic Co-operation and Development (OECD) has become the latest global body to raise its growth forecast for India in the last week, predicting that India's economy will grow by 7.1% in 2026-27, up from 6.3% forecast in June. The OECD, in its Economic Outlook Interim Report September 2026 released on Wednesday, said that several countries have been able to mitigate the damage from the West Asia crisis by rapid growth in artificial intelligence-related investment and production in many economies.
- The Ministry of Defence (MoD) signed a ₹810.79-crore contract with Bharat Dynamics Limited (BDL) on Wednesday to procure 160 Satellite Smart Anti-Airfield Weapons (SAT-SAAW) and associated equipment for the IAF. The weapon is expected to enhance stand-off precision strike capability. The SAT-SAAW is an air-to-ground precision-guided glide bomb designed to neutralise enemy airfields from stand-off range.

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25-09-2026

1. East Asia Summit:

Context: The Indian delegation led by Additional Secretary, Department of Commerce, Shri Nitin Kumar Yadav, participated in the 14th East Asia Summit Economic Ministers' Meeting (EAS-EMM) and the 23rd ASEAN-India Economic Ministers Consultation held in Manila, Philippines.

About East Asia Summit:

- East Asia Summit (EAS) is the Indo-Pacific's premier forum for strategic dialogue and the only leader-led forum bringing key regional partners together to discuss political, security and economic issues.
- It was established in 2005, with the first summit held in Kuala Lumpur, Malaysia; India is a founding member.
- The EAS has 19 members: 11 ASEAN countries along with Australia, China, India, Japan, New Zealand, South Korea, Russia and the United States.
- Timor-Leste became the latest EAS member following its accession to ASEAN on 26 October 2025.
- ASEAN leads the EAS, with the chair rotating annually among ASEAN member states.
- Six priority areas are environment and energy, education, finance, global health and pandemics, natural disaster management, and ASEAN connectivity.
- The EAS Leaders' Summit is held annually, generally in October or November, along with separate Foreign Ministers' and Economic Ministers' Meetings.
- Senior officials meet throughout the year to prepare for summits and discuss regional security, political, economic and other strategic issues.

2. Transfer pricing:

Context: The Finance Minister recently urged BRICS nations to share their experiences on treaty interpretation and multilateral negotiations in international taxation, saying global transfer pricing disputes "disproportionately" burden developing countries.

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About Transfer pricing:

- Transfer pricing refers to the price charged for goods or services exchanged between companies under common control, such as a parent company and its subsidiary.
- It is particularly important for multinational companies (MNCs) operating across different tax jurisdictions, as it helps allocate income and expenses among group entities.
- Tax planning: Companies may structure transfer prices to legally optimise tax liabilities by allocating profits and costs across countries with different tax rates, subject to applicable rules.
- Arm's Length Principle (ALP): Related-party transactions must be priced as if they were conducted between independent and unrelated parties in an open market.
- In India, International Transfer Pricing Regulations (ITPR) require income from international transactions between associated enterprises to be determined with reference to the ALP.
- **Benefits:** Transfer pricing facilitates profit allocation among subsidiaries, financial efficiency and legitimate tax planning, while also helping manage international business transactions.
- **Disputes:** Differences between countries over the allocation of taxable profits can lead to disputes between MNCs and tax authorities, making compliance with domestic and international transfer-pricing rules essential.

3. Black carbon:

Context: A new report has identified black carbon as a significant contributor to Himalayan glacier melt.

About Black carbon:

- Black carbon (BC) is a dark, sooty particulate matter produced by the incomplete combustion of fossil fuels, biofuels and biomass; it is a component of PM2.5.
- It is a short-lived climate pollutant (SLCP) with an atmospheric lifetime of only days to weeks, but has a strong warming effect.
- Unlike CO_2, black carbon is a particle, not a greenhouse gas, and is considered one of the major contributors to global warming after CO_2.

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- Major sources include diesel engines, coal-fired power plants, cookstoves, forest fires, crop-residue burning and brick kilns.
- It strongly absorbs solar radiation, causing atmospheric heating; its deposition on snow and ice reduces albedo, thereby accelerating glacial and snow melt.
- Black carbon also causes serious health impacts, particularly through fine-particle exposure, and can contribute to premature mortality; it can also be transported far from its source region.

4. Srivilliputhur–Megamalai Tiger Reserve (SMTR):

Context: The Paliyar tribe is a Scheduled Tribe of southern India, primarily inhabiting the South Western Ghats montane rainforests of Tamil Nadu and eastern Kerala. They are also known as Paliyans, Palaiyars, Pazhaiyares and Panaiyars and belong to the Dravidian ethnolinguistic group, mainly speaking a dialect related to Tamil. Recently, 18 Paliyar families in Nochiodai, a remote settlement located 32 km inside the Srivilliputhur–Megamalai Tiger Reserve (SMTR), received solar power supply.

About Srivilliputhur–Megamalai Tiger Reserve (SMTR):

- Srivilliputhur–Megamalai Tiger Reserve (SMTR) is located in Tamil Nadu's Western Ghats and was formed in February 2021 by merging the Grizzled Squirrel Wildlife Sanctuary and Megamalai Wildlife Sanctuary.
- It serves as an important ecological corridor between Periyar Tiger Reserve (Kerala) and Kalakkad–Mundanthurai Tiger Reserve (Tamil Nadu).
- The reserve is drained by perennial rivers including Vaigai, Suruliyaru and Shanmuganathi and receives both Southwest and Northeast monsoons.
- Vegetation includes tropical evergreen/semi-evergreen, dry and moist deciduous forests and grasslands, with teak, Indian rosewood, bamboo and medicinal plants.
- Fauna includes tiger, elephant, leopard, gaur, Nilgiri tahr, sambar, spotted deer, Nilgiri langur and lion-tailed macaque, along with diverse birds and reptiles.
- SMTR is particularly important as a stronghold of the Grizzled Giant Squirrel (Ratufa macroura), an arboreal mammal found in limited areas of peninsular India and Sri Lanka.

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5. Society for Worldwide Interbank Financial Telecommunication (SWIFT) System:

Context: The core issue is the search for alternatives or complementary mechanisms to SWIFT and dollar-based correspondent banking for cross-border payments. The 2026 BRICS New Delhi Declaration focuses on making cross-border payments faster, cheaper and more efficient through interoperability of payment systems and greater use of national currencies, but it does not adopt a common BRICS currency or formally include the proposed CBDC-linking plan. Key alternatives discussed are mBridge, a multi-CBDC platform designed for direct cross-border settlement; China's CIPS, which facilitates international yuan transactions; and Russia's SPFS, developed as an alternative financial messaging system after sanctions restricted Russian banks' access to SWIFT.

About SWIFT System:

- SWIFT (Society for Worldwide Interbank Financial Telecommunication) is a member-owned cooperative that enables secure communication for international financial transactions. It was established in 1973 by 239 banks from 15 countries.
- It provides a secure messaging network through which banks exchange payment instructions, but does not itself transfer or hold money.
- Each participating financial institution is identified by a unique 8- or 11-character Bank Identifier Code (BIC/SWIFT code), enabling standardised cross-border communication.
- SWIFT is headquartered in La Hulpe, Belgium, and is overseen by major central banks including the G10 central banks, ECB and National Bank of Belgium.
- Its governance is through shareholders representing thousands of member institutions, who elect a 25-member Board of Directors.
- Exclusion from SWIFT can function as a powerful financial sanction, as it can make international payments and settlements significantly more difficult for the affected country's banks.

6. Opposition seeks Gyanesh Kumar exit: How can a Chief Election Commissioner be removed?: (GS paper 2)

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- **Appointment:** The CEC and Election Commissioners are appointed by the President on the recommendation of a three-member committee comprising the Prime Minister, Leader of Opposition and a Union Cabinet Minister. Tenure is 6 years or until 65 years, whichever is earlier.
- **Constitutional Protection:** Under Article 324(5), the CEC can be removed only in the same manner and on the same grounds as a Supreme Court judge, providing strong institutional protection.
- **Grounds for Removal:** Removal is possible only for proved misbehaviour or incapacity. Misbehaviour may include abuse of office or conduct incompatible with the constitutional position, while incapacity means inability to perform official duties.
- **Impeachment Notice:** A removal motion must allege misbehaviour or incapacity and requires signatures of at least 100 Lok Sabha MPs or 50 Rajya Sabha MPs for admission.
- **Parliamentary Process:** If admitted, an enquiry committee investigates the charges. Removal requires a two-thirds majority of members present and voting in both Houses. The President then formally orders removal.
- **Previous Attempts:** No CEC has ever been removed through impeachment in India. Earlier in 2026, motions against CEC Gyanesh Kumar submitted with 130 Lok Sabha and 63 Rajya Sabha signatures were rejected by the respective presiding officers.

Quick Bites:

- The Ministry of Culture, will organise the BRICS Theatre Festival 2026 from 12 to 14 October 2026 in New Delhi under India's BRICS Presidency 2026. The three-day festival, themed "Shared Stories, Shared Futures", will bring together over 100 theatre practitioners, scholars, students and cultural representatives from nine BRICS Member and Partner Countries.
- The 65th Subroto Cup International Football Tournament 2026 concluded at the Dr. BR Ambedkar Stadium, where Minerva Public School (MPS) CISCE, Mohali, defeated MIC EMHSS (Maqdoomiya Islamic Cultural English Medium Higher Secondary School), Kerala, by a score of 3–2 to claim the Junior Boys (U-17) championship title.
- Under the Technology Development Fund (TDF) scheme, Defence Research and Development Organisation (DRDO) has signed the first high-value deep tech project agreement with the Industry (Start-

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up) Zero mK India Private Limited towards collaborative effort for indigenous development of a 20 mK Dilution Refrigerator for Quantum Applications. It is the first high value agreement under the Rs 500 crore corpus which was earlier approved by Raksha Mantri Shri Rajnath Singh for deep-tech and cutting-edge projects. Dilution refrigerators are specialised cryogenic systems capable of achieving extremely low temperatures in the millikelvin range. Such ultra-low-temperature environment is essential for the operation and testing of several quantum computing platforms and associated quantum technologies.

- INS Trishul arrived at Toulon, France, on 22 Sep 2026 to participate in the 24th edition of the bilateral maritime exercise 'VARUNA' between the Indian Navy and the French Navy. Exercise VARUNA will witness professional engagements in harbour and at sea, including cross-deck visits, operational interactions and sporting engagements.
- The Capacity Building Commission (CBC), in collaboration with the Department of Public Enterprises (DPE), Ministry of Finance, inaugurated the 4th Bharat CPSEs' Consultative Conclave at Gati Shakti Vishwavidyalaya, Vadodara. Held under the Mission Karmayogi framework from 24–26 September 2026, with GSV as the Strategic Knowledge Partner, the three-day conclave brings together 26+ senior officers from 15 CPSEs in infrastructure, construction, transportation, logistics and telecommunications, along with experts from industry, academia and government to strengthen capacity building and knowledge-sharing.
- India has been placed on the Strategic Partner stream of the Pacific Islands Forum (PIF), strengthening its engagement with Pacific Island countries. Founded in 1971, PIF is the region's leading political and economic organisation, comprising 18 members. It aims to promote a resilient Pacific region based on peace, security, social inclusion and prosperity, with its Secretariat located in Fiji.
- The India–CARICOM Foreign Ministers' Meeting (FMM) was held on the sidelines of the 81st UN General Assembly (UNGA) in New York. CARICOM (Caribbean Community) is an intergovernmental organisation of 23 countries—15 Member States and 8 Associate Members. It aims to promote economic integration, regional cooperation, foreign-policy coordination, and human and social development among Caribbean countries.
- PB-SHABD (Prasar Bharati–Shared Audio-Visuals for Broadcast and Dissemination) was launched in March 2024 as a 24×7 news-feed service of Prasar Bharati. It provides registered media organisations, digital publishers and content creators with free, authentic and ready-to-use news content in text, video,

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audio, photographs and infographic formats, enabling timely dissemination of news from India and around the world.

- The United Kingdom announced its first military space squadron on 23 September 2026. The unit is named No. III Space Effects Squadron and will protect satellites, counter hostile activity in orbit, and support offensive and defensive space operations.

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26-09-2026

1. Digital Connectivity Rating (DCR) Platform:

Context: The Telecom Regulatory Authority of India (TRAI) today launched the Digital Connectivity Rating (DCR) Platform, an integrated digital platform designed to provide visibility of rating of properties to the consumers and facilitate the end-to-end process for rating the digital connectivity of properties along with a mobile app for testing digital connectivity.

About Digital Connectivity Rating (DCR) Platform:

- **Regulatory Framework:** The Digital Connectivity Rating (DCR) Platform facilitates implementation of TRAI's Rating of Properties for Digital Connectivity Regulations, 2024, as amended in 2026, along with the Rating Manual 2026.
- **Common Digital Interface**: It brings Property Managers (PMs), registered Digital Connectivity Rating Agencies (DCRAs) and consumers onto a single digital platform.
- **Property Registration & Application:** Property Managers can register properties, submit rating applications, upload documents, select a registered DCRA and track the application status.
- **Assessment & Rating:** Registered DCRAs can assess constructed and under-construction properties, record observations and test results, generate reports and complete the certification and rating process.
- **Mobile Connectivity Testing:** A dedicated DCRA mobile app enables authorised agencies to conduct in-building digital connectivity measurements according to the prescribed methodology, with assessment data synchronised with the platform.
- **Digital & Secure Services:** The platform supports eSign, online payment of rating fees, email/SMS alerts and secure storage of property records, test results, certificates and audit logs.
- **Consumer Empowerment:** Consumers can search rated properties by name, certificate ID or location, view digitally signed certificates and verify them through QR codes, enabling informed decisions before purchasing or leasing a property.

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2. Quadrilateral Security Dialogue (QUAD):

Context: As part of the QUAD-at-Sea Ship Observer Mission, Indian Coast Guard (ICG) Ship Shaunak sailed from Chennai on September 25, 2026 for Perth, Australia. This marks an important step in advancing maritime cooperation and interoperability among QUAD nations - India, Australia, Japan, and the United States.

About Quadrilateral Security Dialogue (QUAD):

- **Composition:** The Quad is a strategic grouping of India, United States, Japan and Australia focused on cooperation in the Indo-Pacific.
- **Objectives:** It promotes a free, open, inclusive and rules-based Indo-Pacific, along with regional security and economic cooperation.
- **Shared Principles:** Members emphasize democracy, human rights, rule of law and respect for international law.
- **Genesis (2007):** Proposed by Japanese PM Shinzo Abe and initially developed through informal consultations among the four countries.
- **Revival (2017):** The Quad was revived with formal discussions in Manila, amid growing strategic concerns in the Indo-Pacific.
- **Security Cooperation:** The Malabar naval exercise expanded to include Australia in 2020, strengthening maritime cooperation among the four countries.
- **Institutional Structure:** The Quad is not a formal military alliance and has no permanent secretariat or treaty-based decision-making body; cooperation occurs through leaders' summits, ministerial meetings, information sharing and joint exercises.

3. Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY):

Context: Union Minister for Health and Family Welfare and Chemicals and Fertilizers, Shri J.P. Nadda, today inaugurated Aarogya Manthan 2026 at Vigyan Bhawan, New Delhi, marking eight years of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) and five years of the Ayushman Bharat Digital Mission (ABDM).

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About Ayushman Bharat Mission- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):

- Ayushman Bharat is a flagship health protection scheme aimed at achieving Universal Health Coverage (UHC) through preventive, promotive, curative, rehabilitative and palliative healthcare.
- It provides holistic healthcare services at primary, secondary and tertiary levels.
- The scheme targets over 10 crore poor and vulnerable families (around 50 crore beneficiaries) identified through the Socio-Economic Caste Census (SECC).
- It offers health insurance coverage of ₹5 lakh per family per year for secondary and tertiary hospitalization.
- Eligible beneficiaries include SC/ST families, families without an earning member above 16 years, families with annual income below ₹2.5 lakh, and those listed in the PM-JAY beneficiary database.
- There is no restriction on family size, age or gender under the scheme.
- All pre-existing diseases are covered from the first day of enrollment.
- The scheme has two components: Health and Wellness Centres (HWCs) and Pradhan Mantri Jan Arogya Yojana (PM-JAY).
- Health and Wellness Centres provide comprehensive primary healthcare including maternal and child healthcare and treatment for non-communicable diseases.
- PM-JAY provides cashless hospitalization benefits for secondary and tertiary care treatment.
- PM-JAY covers 3 days of pre-hospitalization and 15 days of post-hospitalization expenses including medicines and diagnostics.
- Benefits under PM-JAY are portable across India, allowing treatment in empanelled hospitals nationwide.
- It is a Centrally Sponsored Scheme funded jointly by the Centre and States.
- The implementing agency of the scheme is the National Health Authority.

About Ayushman Bharat Digital Mission (ABDM):

- Under the mission, citizens will be able to create their Ayushman Bharat health account numbers, to which their digital health records can be linked.
- It was launched in September 2021 by the Prime Minister through a video conference.
- It aims to provide digital health IDs for all Indian citizens to help hospitals, insurance firms, and citizens access health records electronically when required.

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- ABHA serves as a unique digital health identity that enables citizens to securely link and access their health records across hospitals, clinics, laboratories and healthcare providers.
- Through ABDM's consent-based health information exchange mechanism, citizens can digitally share their medical records with registered healthcare providers, ensuring paperless and efficient access to healthcare services while maintaining privacy and security of personal health information.

About National Health Authority:

- It is the successor of the National Health Agency, which was functioning as a registered society since 2018.
- The National Health Agency was reconstituted as the National Health Authority in January 2019.
- It is an attached office of the Ministry of Health and Family Welfare with full functional autonomy.
- It is governed by a Governing Board chaired by the Union Minister for Health and Family Welfare.
- It is headed by a Chief Executive Officer (CEO), an officer of the rank of Secretary to the Government of India.

4. Rangeet river:

Context: Anglers in Sikkim will organise a three-day river festival on the banks of the Rangeet river near Jorethang late this month, , seeking to blend catch-and-release fishing with river conservation, adventure tourism and local culture.

About Rangeet river:

- **Tributary:** Rangeet (Rangit) is a major tributary of the Teesta River and one of the important rivers of Sikkim.
- **Origin:** It originates from a glacier near Mount Kabru in the lower Kanchenjunga region of the Himalayas.
- **Course:** The river flows through West Sikkim, passing towns such as Pelling, Jorethang and Legship, before joining the Teesta at Teesta Bazaar.
- **Hydrology:** It is a perennial river, fed by Himalayan snowmelt in summer and monsoon rainfall during June–September.

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- **Geographical Role:** In its lower course, the Rangeet forms part of the boundary between Sikkim and Darjeeling district of West Bengal.
- **Importance:** It supports cold-water fisheries, irrigation, local freshwater supply, terrace farming and small hydropower projects, besides being popular for white-water rafting.
- **Rangeet Dam:** The 60 MW Rangeet Dam, a 45-m-high concrete gravity dam, became operational in 2000.

5. mBridge project:

Context: Saudi Arabia quietly exited the China-led mBridge digital currency project in 2025, saying it was part of its original plan.

About mBridge project:

- A cross-border payments platform designed to enable direct transactions between central banks using Central Bank Digital Currencies (CBDCs).
- **Launch:** Initiated in 2021 by the Bank for International Settlements (BIS) Innovation Hub along with the central banks/monetary authorities of Thailand, UAE, China and Hong Kong.
- **Technology:** Built using Distributed Ledger Technology (DLT), allowing participating institutions to share and validate transaction records on a common platform.
- **Need:** It aims to address problems in cross-border payments such as high costs, slow settlement, multiple intermediaries and operational complexity.
- **Financial Inclusion:** It could help jurisdictions affected by declining correspondent banking, which can increase payment costs and delays.
- **How it works:** Participating central banks and financial institutions operate validating nodes on the shared network, enabling transactions to be recorded and settled directly.
- **Reduced Intermediation:** By allowing direct settlement on a common platform, mBridge can reduce reliance on multiple correspondent banks and potentially reduce the need for the US dollar as an intermediary currency.
- **China's Role:** It is often described as China-led because the Digital Currency Institute of the People's Bank of China has been a founding participant since the project began in 2021.

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6. Armed Forces (Special Powers) Act (AFSPA):

Context: The Union Home Ministry on Friday extended the Armed Forces (Special Powers) Act (AFSPA) in parts of Manipur, Arunachal Pradesh, and Nagaland for another six months. The AFSPA has been extended in the whole State of Manipur except the jurisdiction of 13 police stations in five valley districts, a notification said. Manipur has been affected by ethnic violence since May 3, 2023.

About Armed Forces (Special Powers) Act (AFSPA):

- **Nature:** The Armed Forces (Special Powers) Act (AFSPA), introduced in 1958, provides special powers to the armed forces in areas officially declared "disturbed" due to serious internal security challenges.
- **Historical Background:** The present AFSPA emerged in response to the Naga insurgency in the former unified Assam, following the Armed Forces (Special Powers) Ordinance of 1958.
- **Different Acts:** Parliament has enacted separate AFSPA laws for Assam and Manipur (1958), Punjab and Chandigarh (1983), and Jammu & Kashmir (1990).
- **Disturbed Area Declaration:** Under Section 3, the Governor of a State, Administrator of a Union Territory, or Central Government can declare an area disturbed when armed forces are considered necessary to assist civil authorities.
- **Power to Use Force:** Under Section 4, armed forces personnel can use force, including lethal force in specified circumstances, against persons violating laws relating to prohibited assemblies or possession of weapons.
- **Search and Arrest:** Personnel may arrest without warrant on specified grounds and search premises without a warrant to recover suspects, stolen property, arms or explosives.
- **Destruction of Structures:** They may destroy arms dumps, fortified positions, shelters or structures used for attacks or training of armed groups.
- **Review of Disturbed Areas:** The Supreme Court in Naga People's Movement of Human Rights v. Union of India (1998) upheld AFSPA subject to safeguards, including periodic review of disturbed-area declarations.
- **Legal Protection:** Section 6 requires prior Central Government sanction before legal proceedings can be initiated against personnel for actions taken under AFSPA.

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Quick Bites:

- The Government of India has approved a one-time, interest-free loan of ₹50,000 per barn for FCV tobacco growers in Andhra Pradesh under the Interest-Free Working Capital Assistance Scheme, providing timely financial support to growers amid evolving global market conditions.
- The Agricultural and Processed Food Products Export Development Authority (APEDA) facilitated the flag-off of a 1 MT consignment of GI-tagged Gulbarga Tur Dal from Karnataka to the Maldives on 24 September 2026. The initiative is aimed at expanding international markets for India's GI-tagged agricultural products and strengthening the participation of Farmer Producer Organisation (FPO)-led brands in agri exports.
- Surgeons of the Armed Forces Medical Services (AFMS) carried out 220 sight-restoring surgeries during the 10th edition of first-of-its-kind Mega Eye Surgical Camp, held under Operation Drishti, at an underground operation theatre in Tangdhar in Kupwara, a shelling prone zone, in Jammu & Kashmir along the Line of Control on September 24 & 25, 2026.
- The Ministry of Science and Technology has launched the commercial use of Polylactic Acid (PLA)-based biodegradable plastic under the BioE3 Policy. PLA is a bio-based polymer made from renewable feedstocks and is used in packaging, consumer goods and industrial applications. It is a well-known commercial bioplastic that can biodegrade through biological processes under specified conditions, offering an alternative to conventional petroleum-based plastics.
- The Technology Development Board (TDB) under the Department of Science & Technology (DST) has signed an agreement with GalaxEye Space Solutions Pvt. Ltd. under the Research Development and Innovation (RDI) Fund to develop OptoSAR, a next-generation multisensor satellite technology. OptoSAR combines Synthetic Aperture Radar (SAR) and Electro-Optical (EO) imaging—EO provides detailed visual images but is affected by clouds and light conditions, while SAR can operate day and night and through cloud cover. It has applications in long-range surveillance, human and vehicle detection, and target classification under diverse weather and lighting conditions.
- India has co-hosted the launch of OneSCD, a global partnership aimed at advancing equity and transforming Sickle Cell Disease (SCD) care. SCD is a group of inherited disorders affecting haemoglobin, in which normally flexible, disc-shaped red blood cells become rigid and crescent/sickle-shaped due to a

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genetic mutation. These abnormal cells can block blood flow, leading to complications in different parts of the body.

- Japan's Prime Minister has called for the removal of the "enemy-state" clauses from the UN Charter. These World War II-era provisions, contained in Articles 53, 77 and 107, were originally intended to permit coercive action against former Axis powers such as Germany, Italy and Japan without prior UN Security Council approval. The UN General Assembly recognised these clauses as obsolete in 1995 and adopted a resolution in 2005 calling for their deletion from the Charter.
- India and the Netherlands have signed an MoU to advance the Kalpasar Water Project, a multipurpose initiative aimed at providing water for irrigation, industrial and domestic needs in the water-stressed Saurashtra region of Gujarat. The project envisages creating a large coastal freshwater reservoir by constructing a dam across the Gulf of Khambhat.
- Archaeologists recently discovered a 2,700-year-old monumental tomb at Vulci, an important ancient Etruscan town north of Rome. The Etruscan civilization, also known as the Tyrrhenians, flourished in Italy between the 8th and 3rd centuries BCE, mainly in Etruria (Tuscia) in central Italy. They played an important role in the cultural and political development of early Rome and organized themselves into a confederation of twelve city-states.
- The Government recently reduced Basic Customs Duty (BCD) on major imported crude edible oils to help moderate domestic edible oil prices. BCD is the principal customs duty on imported goods, levied under Section 12 of the Customs Act, 1962, generally on an ad-valorem basis according to rates prescribed under the Customs Tariff Act, 1975. Rates may vary based on the type of goods and country of origin, and the Central Government can exempt specific goods from BCD.
- A new Begonia species, Begonia neelamorum, was formally described from Keyi Panyor district in Arunachal Pradesh on 24 September 2026.
- India's Suruchi Singh and Kamaljeet won the gold medal in the 10m Air Pistol Mixed Team event at the Asian Games 2026 in Aichi-Nagoya, Japan, on 25 September 2026. The pair set a new Asian record in the final with 484.6 points and matched the qualification-round Asian record of 587 points.
- Project Suncatcher is a Google research initiative announced in November 2025 to explore AI computing infrastructure in space. Its first prototype satellite, MVP, is scheduled for launch on 1 October 2026 into

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low-Earth orbit aboard SpaceX's Transporter-18 mission. The satellite carries four Google Tensor Processing Units (TPUs), specialised chips designed for machine-learning workloads, providing computing power roughly equivalent to a single data-centre server. It was developed in partnership with Planet Labs.

- Researchers at the Electrical Engineering Department of the Indian Institute of Technology Delhi developed India's first working and demonstrable indigenous micro-Graphics Processing Unit (micro-GPU) on 24–25 September 2026. A micro-GPU is a compact graphics processor designed for programmable rendering tasks. The IIT Delhi device used a custom floating-point GPU engine and was implemented entirely in Register Transfer Language (RTL).
- As part of Mission Pégase 26, the French Air and Space Force has deployed four Rafale F4 fighters, three A330 MRTT Phénix multi-role tanker transport aircraft, and two A400M Atlas aircraft to Jodhpur for the second edition of the multinational air exercise Tarang Shakti. The deployment arrived on Friday, and will participate in the Tarang Shakti air combat exercise hosted by the Air Force, from September 28 to October 12. The exercise is aimed at enhancing operational cooperation and interoperability between the participating air forces. Mission Pégase 26, the seventh edition of France's long-range air projection exercise, is being conducted from September 8 to October 15.

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27-09-2026

1. e-Methanol:

Context: India took a major step toward becoming a green energy exporter as Union Minister of Ports, Shipping and Waterways (MoPSW), Sarbananda Sonowal laid the foundation stone for the country's first port-based e-methanol plant at Deendayal Port Authority (DPA) in Kandla, Gandhidham, Gujarat, today.

About e-Methanol:

- E-methanol (electro-methanol) is a low-carbon fuel produced by combining green hydrogen with captured CO_2.
- Green hydrogen is produced by water electrolysis using renewable electricity.
- CO_2 is obtained from industrial emissions such as steel/cement plants or through direct air capture.
- The hydrogen and CO_2 are combined in a catalytic reactor under pressure to produce methanol (CH_3OH).
- It can be stored at room temperature and ambient pressure and can use much of the existing methanol/fuel infrastructure; it has applications in shipping, road transport and as a feedstock for synthetic fuels such as gasoline and kerosene.
- **Major challenge:** It is currently more expensive than conventional methanol, mainly because of the high cost of renewable electricity and conversion inefficiencies.

2. Tourism in India:

Context: World Tourism Day is an initiative of the United Nations World Tourism Organisation (UNWTO). It commemorates the adoption of the UNWTO statutes in 1970. First celebrated in 1980, the day highlights the contribution of tourism to socio-economic development and its role in advancing the Sustainable Development Goals (SDGs). World Tourism Day 2026, observed on 27 September this year in El Salvador, under the theme “Digital Agenda and Artificial Intelligence to Redesign Tourism”

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About Tourism in India:

- **Economic contribution:** Tourism contributes 5.22% of India's GDP, as measured through the Tourism Satellite Account (TSA).
- **Employment:** Tourism-related employment increased from 6.94 crore (2019–20) to 8.46 crore (2023–24).
- **Domestic tourism:** Domestic Tourist Visits rose sharply from 67.7 crore (2021) to 428.55 crore (2025).
- **Foreign tourism:** Foreign Tourist Visits increased from 0.1 crore (2021) to 2.53 crore (2025).
- **Foreign exchange:** Tourism-related Foreign Exchange Earnings grew from ₹63,978 crore (2021) to ₹2,76,831 crore (2025), highlighting its growing importance to India's external earnings.

3. Global Cities Index 2026:

Context: Delhi has secured the 268th position among 1,000 cities in the Oxford Economics Global Cities Index 2026.

About Global Cities Index 2026:

- **Published by:** Oxford Economics, the index evaluates 1,000 cities on Economics, Human Capital, Quality of Life, Environment and Governance.
- **Global ranking:** New York ranked 1st, followed by London, Paris, Seattle and San Francisco.
- **India's overall ranking:** About 100 Indian cities feature in the index; Delhi (268) leads, followed by Bengaluru (311), Mumbai (330), Chennai (381), Hyderabad (421) and Pune (427).
- **Fast-growing cities:** 55 Indian cities are among the world's 100 fastest-growing city economies.
- **Delhi:** It is the world's 63rd-largest city economy and is projected to become 14th-largest by 2050, with output exceeding US$2 trillion; it ranks 13th globally in Human Capital.
- **Mumbai:** It is India's leading city for corporate headquarters (23rd globally); its economy is projected to rise from 99th to 36th globally by 2050.
- **Bengaluru:** Climbed 20 places to 311th, was named a 'City to Watch', and is among the 10 fastest-growing cities globally by forecast GDP growth; Chennai and Hyderabad ranked 16th and 15th, respectively, for forecast GDP growth.

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- **Key challenges:** Indian cities score relatively poorly in infrastructure, quality of life and income equality; Delhi ranks second globally for worst air quality.

4. NISAR (NASA-ISRO Synthetic Aperture Radar) satellite:

Context: The Krasheninnikov Volcano is an active stratovolcano in Russia's Eastern Kamchatka Peninsula, which lies along the Pacific Ring of Fire. Its summit reaches 1,856 m and lies within a 9 × 11 km caldera formed about 39,000 years ago. The volcanic complex consists of two adjacent main stratovolcano cones. Recently, the NASA–ISRO NISAR satellite captured detailed radar images of the volcano as lava spread across the region.

About NISAR (NASA-ISRO Synthetic Aperture Radar) satellite:

- NISAR (NASA–ISRO Synthetic Aperture Radar) is a joint NASA–ISRO Earth-observation mission designed to monitor changes on Earth's land and ice surfaces.
- **Mission objectives:** Study surface changes, natural hazards, climate processes, ecosystems, biomass and ice dynamics using radar observations.
- **Orbit & coverage:** It operates in a sun-synchronous LEO at about 747 km altitude and surveys the Earth every 12 days, with a planned 3-year mission life.
- **Dual-frequency radar:** NISAR carries L-band SAR (~24 cm) developed by NASA and S-band SAR (~10 cm) developed by ISRO.
- **L-band SAR:** Developed by NASA's JPL, it can penetrate vegetation and surface materials and is useful for studying biomass, solid-Earth processes and ice sheets.
- **S-band SAR:** Developed by ISRO, it supports monitoring of surface deformation, biomass and natural hazards such as earthquakes, volcanoes and landslides.
- **Work sharing:** NASA provides the L-band radar, GPS receivers, solid-state recorder and data systems, while ISRO provides the S-band radar, satellite platform, GSLV Mk II and launch services.

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5. Travel & Tourism Development Index 2026:

Context: India ranked 31st in the World Economic Forum's Travel & Tourism Development Index 2026, which assessed 110 economies and was published on 25 September 2026. India moved up nine places from 39th in the 2024 index, while Japan secured the first rank in the 2026 edition.

About Travel & Tourism Development Index 2026:

- It is created by WEF in collaboration with the University of Surrey and with input from leading Travel & Tourism (T&T) stakeholder organizations, thought leaders and data partners.
- The WEF Travel & Tourism Development Index (TTDI) 2026 is based on five dimensions: Enabling Environment covering business environment, safety, health, human resources and ICT; T&T Policy and Enabling Conditions covering tourism prioritization, openness and price competitiveness; Infrastructure and Services covering transport infrastructure and tourist services; T&T Resources covering natural, cultural and non-leisure resources; and T&T Sustainability covering environmental sustainability, socioeconomic impact and demand sustainability.

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Rank[1]	Economy	Score[2]	Change since 2024 Rank	Change since 2024 Score
1	Japan	5.27	2 ▲	2.6%
2	United States	5.23	0 —	1.4%
3	Spain	5.22	-2 ▼	1.0%
4	Australia	5.18	2 ▲	3.5%
5	France	5.17	-1 ▼	1.9%
6	Germany	5.09	-1 ▼	1.6%
7	United Kingdom	5.08	0 —	1.6%
8	China	5.00	0 —	2.1%
9	Switzerland	4.97	1 ▲	2.8%
10	Italy	4.93	-1 ▼	1.3%
29	Saudi Arabia	4.45	3 ▲	
30	Cyprus	4.43	1 ▲	
31	India	4.42	9 ▲	
32	Brazil	4.41	-5 ▼	
106	Benin	3.13	-2 ▼	-0.2%	-2 ▼	1.6%
107	Malawi	3.08	1 ▲	1.3%	0 —	2.0%
108	Cameroon	3.05	-2 ▼	-1.1%	0 —	2.3%
109	Sierra Leone	2.91	0 —	2.3%	0 —	3.1%
110	Mali	2.75	0 —	1.8%	0 —	0.1%

6. Mega port:

Context: The Centre has notified four ports—Deendayal (Kandla), Jawaharlal Nehru (Nhava Sheva), Paradip and Mundra—as Mega Ports under the Indian Ports Act, 2025. The notification was issued by the Ministry of Ports, Shipping and Waterways on September 25, 2026 and came into force upon publication in the Gazette. Deendayal, Jawaharlal Nehru and Paradip are major ports, while Mundra is a non-major port

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operated by Adani Ports and Special Economic Zone. The ports were notified under Sections 73(2) and 73(3) respectively, after meeting the Mega Port criteria notified on July 30, 2026.

About Mega port:

- **Bulk port:** Must handle at least 150 Million Metric Tonnes (MMT) of cargo in the preceding financial year.
- **Container port:** Must handle at least 7.5 Million TEUs (MTEUs) in the preceding financial year.
- **Mixed-cargo port:** If a port handles both bulk and containerised cargo, the containerised cargo is converted into MMT using the standard conversion methodology.
- **Coverage:** The criteria apply to both major ports and non-major ports, including existing and newly notified ports.
- **Declaration:** A port can be declared a Mega Port within 90 days of meeting the threshold.
- **Validity:** Once classified, Mega Port status remains valid for 5 years, even if throughput subsequently falls below the threshold; review occurs after five years.

Quick Bites:

❖ World Tourism Day 2026, to be observed on 27 September under the theme "Digital Agenda and Artificial Intelligence to Redesign Tourism", highlights the role of technology in shaping the future of tourism.

❖ The Caspian cobra (Naja oxiana) is a highly venomous Elapid snake native to Central Asia, also known as the Central Asian, Oxus or Russian cobra. It inhabits arid and semi-arid regions, including rocky hillsides and scrublands, and occurs across parts of Central Asia, Afghanistan, Iran, Pakistan and northwestern India. It is a good climber and swimmer, feeding on small mammals, amphibians and birds, and hibernates during winter. Recently, its first confirmed snakebite envenomation and subsequent human deaths in India were documented. It is classified as Near Threatened by the IUCN.

❖ ICGS Shaunak is an indigenously designed and built Samarth-class Offshore Patrol Vessel (OPV) of the Indian Coast Guard, constructed by Goa Shipyard Ltd. Commissioned on 21 February 2017, it is based at Visakhapatnam under the Coast Guard Region (East). Recently, it sailed from Chennai to Perth, Australia,

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to participate in the QUAD-at-Sea Ship Observer Mission, aimed at enhancing maritime interoperability among India, Australia, Japan and the United States.

- The Bagmati River flows through south-central Nepal and northern Bihar, India. It originates at Bagdwar in the Shivapuri Hills, north of Kathmandu, passes through the Kathmandu Valley, crosses the Shivalik Range and Terai plains, and enters Bihar before joining the Burhi Gandak River. About 360 km long, it is fed by springs, monsoon rainfall and tributaries. The Bagmati basin lies between the Gandak Basin to the west and Kosi Basin to the east.
- Sarah Peluse, Associate Professor of Mathematics at Stanford University, was awarded the SASTRA-Ramanujan Award 2026 on 25 September 2026. Established in 2005, the award is given annually to mathematicians aged 32 or below for outstanding work in areas influenced by Srinivasa Ramanujan. It carries a US$10,000 cash prize and a citation and is presented by SASTRA University. Ramanujan was born on 22 December 1887 in Erode, Tamil Nadu.
- The 6th Cycle of Management Effectiveness Evaluation of Tiger Reserves (MEE-TR) was launched in New Delhi on 25 September 2026. The assessment will evaluate the management effectiveness of all 58 tiger reserves in India. MEE-TR is a structured framework for assessing the effectiveness of protected-area management and is conducted by the National Tiger Conservation Authority (NTCA) in collaboration with the Wildlife Institute of India (WII).
- India signed the United Nations Convention against Cybercrime in September 2026 in New York during the 81st UN General Assembly, with External Affairs Minister S. Jaishankar signing on India's behalf. Adopted by the UN General Assembly in 2024, it is the first comprehensive global treaty on cybercrime. The convention establishes a framework for preventing and combating cyber offences, promoting international cooperation in investigations, electronic evidence sharing, and addressing technical and legal challenges related to digital crime.
- Paradip Port was designated as a "Mega Port" on 25 September 2026 under Section 73 of the Indian Ports Act, 2025. The Ministry of Ports, Shipping and Waterways granted the status after an assessment of structural and operational capabilities against prescribed benchmarks. The "Mega Port" category is a statutory designation under the Indian Ports Act, 2025. Paradip Port became the only port on India's eastern coast to receive this status.

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- India and Liberia launched the "Group of Friends on Safety & Security of Shipping & Seafarers" in New York on 25 September 2026. The initiative was announced during the United Nations General Assembly High-Level Week, and India and Liberia will serve as co-chairs of the group.
- The Indian Men's and women's kabaddi teams won the gold medal at the Asian Games in Aichi-Nagoya on 26 September 2026.

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28-09-2026

1. OneSCD:

Context: Recently, India co-hosted the launch of OneSCD on the sidelines of the 81st session of the United Nations General Assembly (UNGA 81) in New York.

About OneSCD:

- **Global Partnership:** A global partnership has been launched to advance equity and transform Sickle Cell Disease (SCD) care by strengthening existing country-led programmes and scaling proven healthcare approaches.
- **Host & Partners:** It was hosted by the Government of Nigeria and co-organised with UNICEF, WHO, Africa CDC, World Coalition on Sickle Cell Disease and St. Jude Children's Research Hospital.
- **Participants:** The initiative brings together governments, UN agencies, health experts, civil society and people with lived experience of SCD.
- **Focus:** It aims to improve international cooperation and expand access to prevention, diagnosis, treatment and long-term care for people affected by SCD.
- **Nature of SCD:** SCD is a group of inherited blood disorders affecting haemoglobin. The most common and severe form is sickle cell anaemia.
- **Blood-flow problem:** Due to abnormal haemoglobin S, red blood cells become rigid and crescent-shaped, making them prone to blocking blood vessels and restricting oxygen supply to tissues.
- **Symptoms:** Symptoms generally begin in childhood and include anaemia, fatigue, swollen hands and feet and jaundice; later complications can include severe pain, organ damage and infections.
- **Treatment:** SCD results from a defective inherited gene. Bone marrow/stem-cell transplantation can cure some patients, while gene therapy is being explored as another potential curative approach.

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2. United Nations Convention against Cybercrime:

Context: Recently, the Union External Affairs Minister signed the United Nations Convention against Cybercrime, aimed at strengthening global efforts to prevent and combat cybercrime.

About United Nations Convention against Cybercrime:

- The United Nations Convention against Cybercrime is the first comprehensive, legally binding global treaty on cybercrime, adopted by consensus by 193 UN member states.
- It was adopted by the UN General Assembly in December 2024 to strengthen international cooperation in preventing and combating cybercrime.
- Its main objectives are to promote international cooperation, prevention and investigation of cybercrime, and capacity-building, particularly for developing countries.
- The Convention entered into force after obtaining the required 40 member-state threshold; by the end of 2025, 93 countries had signed it. India has also signed the Convention.
- It was developed through the UN Office on Drugs and Crime (UNODC) and establishes common legal standards for offences such as illegal access, cyber fraud and online child exploitation, while recognising human rights and data privacy.
- It facilitates cross-border sharing of electronic evidence and establishes a 24/7 cooperation network among States for addressing cybercrime.
- It recognises non-consensual dissemination of intimate images as an offence and covers crimes including hacking, ransomware, online financial fraud, illegal interception and money laundering.
- The Convention also applies to the collection, preservation and sharing of electronic evidence relating to serious crimes, even when those crimes are not themselves cyber offences.

3. Wayanad Wildlife Sanctuary:

Context: A two-day vulture survey has begun across the Wayanad Wildlife Sanctuary ahead of the upcoming Wildlife Week celebrations in Keralam.

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About Wayanad Wildlife Sanctuary:

- **Location:** The sanctuary is located in Wayanad, Kerala, in the southern Western Ghats, and is also known as Muthanga Wildlife Sanctuary.
- **Establishment & Area:** Established in 1973, it covers about 344 sq km and forms part of the Nilgiri Biosphere Reserve, a UNESCO World Heritage Site.
- **Protected-area linkages:** It is bordered by Nagarhole and Bandipur in Karnataka and Mudumalai in Tamil Nadu, forming part of an important wildlife landscape.
- **Rivers & Tribes:** The Kabini, Cherupuzha and Bavali rivers flow through the sanctuary. Indigenous communities include Paniyas, Kattunaikkans, Kurumas, Ooralis, Adiyans and Kurichiyas.
- **Vegetation:** It contains moist deciduous, dry deciduous and semi-evergreen vegetation; plantations of teak, rosewood, eucalyptus and silver oak cover about one-third of the area.
- **Fauna:** It supports major populations of Asian elephants and tigers, along with leopards, gaur, sambar, wild boar, sloth bears and jungle cats.

4. Cool Leaders Award:

Context: Recently, the inaugural Cool Leaders Award was announced at the Global Cooling Pledge Assembly 2026 held in Singapore.

About Cool Leaders Award:

- The Cool Leaders initiative is a global recognition programme launched by the UNEP Cool Coalition to recognise outstanding leadership in sustainable cooling and protection against extreme heat.
- The first Cool Leaders are Singapore, recognised for passive cooling and heat resilience; the United Arab Emirates, for district cooling and global cooling policy; and Dong Mingzhu, Chairwoman of Gree Electric Appliances, for developing ultra-efficient, low-carbon cooling technologies.
- The UNEP Cool Coalition is a global platform focused on achieving system-level transformation in sustainable cooling.
- It was launched in 2019 as a flagship initiative of the UN Secretary-General's Climate Action Summit.

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- The Coalition brings together 250+ actors, including governments, businesses, cities and financial institutions, to promote efficient and climate-friendly cooling solutions.
- Its work supports international goals under the Paris Agreement, Kigali Amendment and UN 2030 Agenda.

5. Right to vote in India:

Context: On September 23, an Indian Express investigation revealed an unprecedented rift within the three-member Election Commission of India (EC), with Election Commissioners Sukhbir Singh Sandhu and Vivek Joshi recording 14 objections over 10 months against Chief Election Commissioner Gyanesh Kumar, regarding alleged unilateral changes to rules, voter additions/deletions, and centralised data access, without the Commission's full approval.

About Right to vote in India:

- **Constitutional basis:** Article 326 provides for elections to the Lok Sabha and State Legislative Assemblies on the basis of adult suffrage, subject to constitutional and statutory disqualifications. Article 325 also prohibits exclusion from electoral rolls on grounds only of religion, race, caste or sex.
- **Statutory status:** In Kuldip Nayar v. Union of India (2006), a Constitution Bench held that the right to elect is a statutory right, primarily governed by the Representation of the People Act, 1951, and is neither a Fundamental Right nor, in that ruling, a constitutional right.
- **People's Union for Civil Liberties (PUCL):** The Supreme Court distinguished between the right to vote and the freedom of voting. While the right to vote is statutory, the manner in which a voter expresses a choice can implicate freedom of expression under Article 19(1)(a), as recognised in the NOTA context.
- **Rajbala v. State of Haryana:** In Rajbala (2015/2016), the Court described the right to vote under Article 326 as a constitutional right, subject to limitations prescribed by law. This created a judicial divergence from the position in Kuldip Nayar.
- **Anoop Baranwal (2023):** The Constitution Bench did not overturn the established Kuldip Nayar position; it reiterated that the right to vote is a statutory right, while distinguishing it from the freedom of voting as an aspect of expression. Justice Ajay Rastogi's dissent took a broader view of political participation.

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- **Recent judicial position:** A 2026 Supreme Court judgment again stated that the right to vote is not a Fundamental Right and that political-participation rights are subject to statutory regulation, referring to Kuldip Nayar, Jyoti Basu and related precedents.
- **Democratic significance:** Despite its statutory legal classification, the right to vote is central to representative democracy and free and fair elections. The constitutional framework therefore requires electoral rolls and election administration to protect eligible citizens' participation while allowing lawful verification and revision.

Quick Bites:

- The Lalit Kala Akademi, National Academy of Art, is organising the 65th National Exhibition of Art (NEA), one of the most prestigious annual exhibitions of contemporary visual art in India. The exhibition provides a national platform for artists to showcase their creative practices and for audiences to engage with the diverse and evolving visual arts of the country.
- Indian Navy's frontline stealth frigate, INS Sahyadri, and missile corvette, INS Kulish, concluded their participation in the 23rd ADMM-Plus Experts' Working Group on Maritime Security Joint Cooperation Activity (EWG-MS JCA) at Subic Bay, Philippines, with the Closing Ceremony held on 25 Sep 2026.
- Incendiamoeba cascadensis is a newly discovered amoeba species found in the geothermal streams of Lassen Volcanic National Park, California, USA. Its name means "fire amoeba from the Cascade mountain range." It can reproduce at temperatures up to 145°F (63°C), making it the most heat-tolerant eukaryote recorded so far and expanding the known limits of complex life.
- Vizellopsidites miocenicus is a newly discovered species of ancient microscopic fungus, preserved on a fossilised plant leaf dating back up to 12 million years from the foothills of the western Himalayas in Mandi district, Himachal Pradesh. Since the fungus was nearly invisible, researchers used maceration, a process involving gentle acids to dissolve surrounding rock and isolate the leaf's outer layer. A high-powered microscope then revealed the fungus's dark-brown microscopic structures.

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29-09-2026

1. Modhera Sun Temple:

Context: Prime Minister recently highlighted the thousand-year history of Gujar Modhera Sun Temple, recalling its destruction during invasions and its subsequent reconstruction, while also highlighting the village's transformation into India's first 24x7 s village.

About Modhera Sun Temple:

- Modhera Sun Temple is a Hindu temple dedicated to Surya, located at Modhera, Mehsana district, Gujarat, on the bank of the Pushpavati River.
- It was built around 1026–27 CE during the reign of King Bhima I of the Chaulukya (Solanki) dynasty.
- The temple is now non-functional for worship, protected and maintained by the Archaeological Survey of India (ASI); it became a UNESCO World Heritage Site in 2014.
- Built in the Maru-Gurjara (Chaulukya) architectural style, the complex consists of Gudhamandapa (shrine hall), Sabhamandapa (assembly hall), and Kunda (stepped reservoir).
- The complex follows an east–west alignment, symbolically connecting the temple with the movement of the Sun; sunlight was designed to illuminate the sanctum during the equinoxes.
- The Sabhamandapa has 52 pillars, traditionally associated with the 52 weeks of the year, with elaborate carvings depicting the Ramayana, Mahabharata and Krishna's life.
- The Surya Kund/Kunda has numerous steps and small shrines, while the temple's exterior is richly decorated with intricate sculptural carvings.

2. Polylactic Acid (PLA):

Context: Recently, the Union minister for Science and Technology launched the commercial use of bio-based biodegradable plastic based on Polylactic Acid (PLA).

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About Polylactic Acid (PLA):

- Polylactic Acid (PLA) is a biodegradable thermoplastic polymer produced from renewable resources such as corn starch and sugarcane.
- It is produced by fermenting glucose into lactic acid, followed by polymerization of lactic acid.
- PLA has diverse applications including food packaging, medical sutures and 3D printing.
- Its bio-based origin can help reduce carbon footprint, while using agricultural waste can provide additional income to farmers and sustainable raw materials for industries.
- PLA production can be integrated with existing agro-industrial facilities, such as locating bioplastic plants near sugar mills, improving resource use and reducing waste.

3. Musk deer:

Context: Recently, the Assam Police recovered six musk deer pods from two Arunachal Pradesh-based men during an operation near Guwahati.

About Musk deer:

- Musk deer belong to the family Moschidae and are small, deer-like mammals found mainly in the Himalayas and highlands of Central and Northeast Asia.
- They inhabit forests, brushlands and rocky slopes, generally at elevations of about 2,600–3,000 m.
- They are shy, solitary and mostly nocturnal animals; unlike true deer, they lack antlers.
- Their well-developed side toes provide excellent grip, helping them move over snowy and rocky terrain; their diet includes browse, grass, mosses and lichens.
- Male musk deer possess a musk pod (scent gland) that produces a strong-smelling secretion used in traditional perfumes and medicines and for communication/territorial marking.
- Major populations occur in western China, Myanmar and the Himalayan region.
- **Conservation status:** IUCN – Endangered; CITES – Appendix I; Wildlife (Protection) Act, 1972 – Schedule I.

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4. "Kaladi"

Context: The Union Minister of State in PMO recently stated that the "Kaladi", the GI-tagged traditional dairy product of the Udhampur district of Jammu and Kashmir, has reached the commercial threshold for local and global consumption.

About "Kaladi"

- Kalari cheese, also called the "Mozzarella of the Himalayas," is a traditional cheese from Ramnagar, Udhampur district, Jammu & Kashmir, traditionally made by Gujjar shepherds.
- It is a ripened cheese made from cow's or goat's milk, originally developed to preserve excess summer milk.
- Traditionally, milk is curdled using sour whey, the solids are separated and pressed into discs, which are then sun-dried.
- Kalari has a mild flavour and dense, stretchy texture; when pan-seared, it develops a golden crispy crust while remaining gooey inside.
- It received the Geographical Indication (GI) tag in 2023 and is generally stored frozen in sealed packets to maintain freshness.

5. Bullet train project:

Context: The rate of progress on the Mumbai-Ahmedabad high-speed rail corridor project has not "lived up to" Japan's initial expectations, a senior official of Japan's Ministry of Foreign Affairs said on Monday. India's first bullet train project is being supported, financially and technically, by Japan. Speaking exclusively to The Hindu, the official said that Japan is not in a position to declare when the project will be completed, but maintained that, despite the delay, the project is now making "steady progress".

About Bullet train project:

- The Mumbai-Ahmedabad High Speed Rail Corridor, often referred to as the Bullet Train project, is an ambitious infrastructure undertaking in India.

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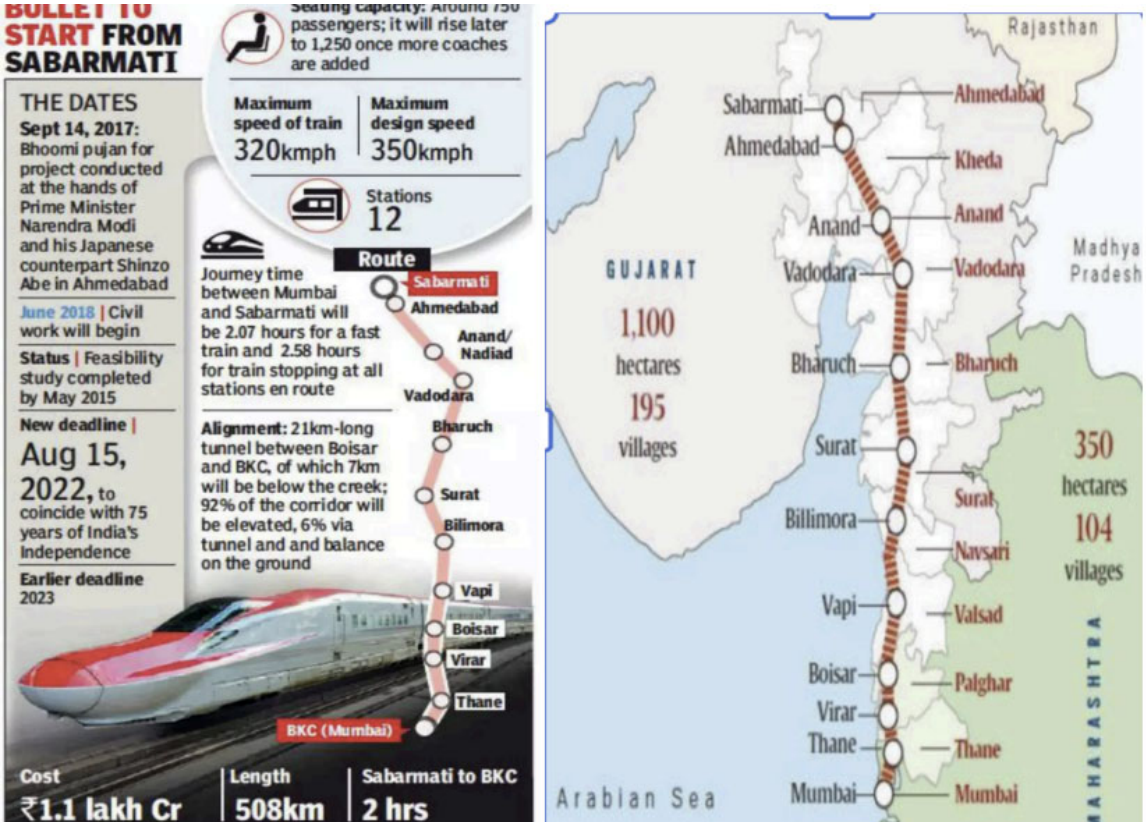
- It aims to connect the financial capital, Mumbai, with the industrial hub, Ahmedabad, through a high-speed rail network.
- The length of the project is 508 Km with 12 stations planned at Mumbai, Thane, Virar, Boisar, Vapi, Bilimora, Surat, Bharuch, Vadodara, Anand, Ahmedabad and Sabarmati.
- The train is expected to take around 2 hours and 58 minutes to travel between Ahmedabad and Mumbai, covering eight stations in Gujarat and four in Maharashtra.
- The sanctioned cost of the project is ₹1,08,000 Crore.



- It passes through the States of Gujarat, Maharashtra and Union Territory of Dadra & Nagar Haveli.
- The project utilizes Japanese Shinkansen technology, renowned for its speed, safety, and comfort.

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Mains specific articles:

1. Prolonged El Nino may hurt marine ecosystem: INCOIS: (GS paper 1)

- **El Niño Persistence:** Current El Niño conditions are expected to remain dominant until at least April 2027, with probabilities of 80–100%. Scientists at INCOIS warn of significant impacts on the marine ecosystem.
- **Meaning of El Niño:** El Niño is the warming of sea-surface temperatures in the central and eastern equatorial Pacific Ocean and represents the warm phase of ENSO. It generally weakens the Indian summer monsoon.
- **Marine Heatwaves:** El Niño can cause higher sea-surface temperatures, increased upper-ocean heat content and stronger water-column stratification, leading to widespread marine heatwaves in the Arabian Sea and Bay of Bengal.
- **Reduced Coastal Upwelling:** The ongoing El Niño has significantly reduced coastal upwelling along India's west coast, limiting the supply of nutrient-rich deep waters and potentially reducing marine productivity and fish availability.
- **Impact on Fisheries:** Historical data since 1950 indicate that marine fish catches generally decline during El Niño, though impacts vary regionally. CMFRI studies (1985–2023) found adverse effects on maturation and recruitment of Indian oil sardine and Indian mackerel in Kerala and Karnataka.
- **Fish Habitat Shifts:** Rising ocean temperatures can push fish populations towards their physiological limits, forcing them into deeper waters or higher latitudes, thereby altering their distribution and availability.
- **Wave Conditions:** El Niño-induced weakening of the South Asian monsoon can produce higher significant wave heights in the Bay of Bengal while reducing wave activity in the Arabian Sea.
- **Contrast with La Niña:** La Niña, characterised by unusually cooler equatorial Pacific waters, generally supports stronger Indian monsoon conditions, in contrast to the rainfall-weakening influence of El Niño.

Quick Bites:

❖ The Commanders' Conference 2026/02 (the second edition of 2026 Indian Navy's biannual Conference) is scheduled over a period of three days from 29 Sep 2026 to 01 Oct 2026 at Nausena Bhawan, New Delhi. As the Navy's Apex Level forum, the Conference provides an avenue for senior Naval leadership,

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including outstation Operational and Area Commanders, to undertake a comprehensive review of Operational preparedness at the military-strategic level and engage with Senior Government functionaries through an institutionalised mechanism.

- A 60-member Indian Armed Forces contingent departed today for Oskemen, Kazakhstan, to participate in the ninth edition of the India–Kazakhstan Joint Military Exercise KAZIND, scheduled to be conducted from 28 September to 11 October 2026. The Indian contingent is drawn mainly from a battalion of the GARHWAL RIFLES, along with troops from other arms and services, and personnel from the Indian Air Force. The Kazakhstan Armed Forces will field a contingent of matching strength, comprising primarily personnel from its Land Forces. The exercise aims to enhance interoperability and strengthen the joint capability of both forces to undertake Joint Counter-Terrorism operations in a sub-conventional environment under a United Nations mandate.
- India today underlined the need for conservation of whales and other cetaceans at the 70th meeting of the International Whaling Commission (IWC-70), being held in Hobart, Australia. The International Whaling Commission (IWC) was set up under the International Convention for the Regulation of Whaling, signed in Washington DC on 02.12.1946, as the global body responsible for management of whaling and conservation of whales. Its membership includes 89 governments from all over the world. India has been a member of the International Whaling Commission since 1981 and has played a proactive and prominent role in the conservation of whales.
- Union Home Minister and Minister of Cooperation Shri Amit Shah inaugurated the Conference on 'PRAHAAR - CT Policy and Strategy' today in New Delhi. The Conference deliberated upon the seven pillars of PRAHAAR including Prevention, Response, Aggregating Internal Capacities, Human Rights, Attenuating Conditions for Terrorism, Aligning International Efforts and Recovery &Resilience through a whole-of-society approach.
- Special Campaign 6.0 is a Government of India initiative aimed at improving cleanliness, reducing administrative pendency and strengthening record management in government offices. It focuses on cleanliness of office premises, disposal of obsolete files and scrap, resolution of pending references and grievances, and better utilisation of office space, with the broader objective of promoting efficient, transparent and citizen-centric governance.

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- India finished 10th at the 48th WorldSkills Competition in Shanghai, China, which concluded on 27 September 2026. Team India won six silver medals and 20 Medals for Excellence at the global skills event. At the 48th WorldSkills Competition, held in Shanghai, China, and concluded on 27 September 2026, China topped the overall medal standings with 41 gold, 11 silver and 4 bronze medals, followed by South Korea with 4 gold, 14 silver and 6 bronze medals. The competition showcases excellence in vocational and technical skills across various fields.
- India's first LNG-powered train was flagged off on 27 September 2026 from Sabarmati Railway Station in Ahmedabad, Gujarat. The train uses a diesel-plus-LNG dual-fuel system and runs with two 1,400 HP Driving Power Cars converted at the Sabarmati Integrated Coaching Depot.
- Hyderabad-based TakeMe2Space plans to launch India's first networked orbital data centre mission in 2028. The mission will use two 100-kilogram MOI (My Orbital Infrastructure) constellation satellites and a SpaceX Falcon 9 launch under the Waymaker 2 rideshare mission.
- A rare pyramid-shaped tomb dating to the Roman period was recently discovered at Bir Al-Shaghala in Egypt's Dakhla Oasis. Dakhla Oasis is a desert oasis in Egypt's Western Desert, located west of the Nile between Cairo and Luxor, covering about 2,000 sq km. The Western Desert accounts for nearly two-thirds of Egypt's land area. Dakhla has a long history of human habitation, with nomadic hunter-gatherers settling there around 12,000 years ago.
- The Livestock Insurance Portal, to be launched by the Department of Animal Husbandry and Dairying, is a single digital platform for livestock insurance under the Livestock Insurance Scheme. It aims to make insurance services more transparent, efficient, accessible and technology-driven, covering policy issuance, claim processing, monitoring and reporting. The portal will strengthen risk protection and livelihood security of livestock farmers and will be available in Hindi, English and 11 regional languages.

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30-09-2026

1. PRAMAAN Certification:

Context: Union Environment Minister Bhupender Yadav handed over the first PRAMAAN certificates under the Indian Forest and Wood Certification Scheme (IFWCS) in New Delhi. The certificates were awarded to the Andhra Pradesh Forest Development Corporation (APFDC) for 33,000 hectares of plantations and to a farmer associated with the Odisha Bamboo Development Agency (OBDA). The plantations underwent rigorous field and management audits, marking the transition of IFWCS, launched in December 2023, from a policy framework to field-level certification of forest plantations and tree-based farming.

About PRAMAAN Certification:

- PRAMAAN stands for Programme for Recognition and Accreditation of Sustainable Management Practices for Agroforestry and Natural Forestry Resources.
- It is a nationally accepted, credible and transparent certification framework for forests, wood and non-timber forest products (NTFPs).
- **Objective:** Promote linkages between certified forests/agroforestry products and domestic as well as international markets.
- **Significance:** The IFWCS-PRAMAAN certificate enhances the social and ecological value of forests, agroforestry systems and India's wood-based industries.
- **Assessment Standard:** Forest management certification is assessed against the Indian Forest Management Standard, incorporated in the National Working Plan Code 2023.
- **Independent Audit:** Certification is based on independent audits by certification bodies accredited by NABCB under the Quality Council of India, rather than self-declaration.
- **International Recognition:** PRAMAAN's accreditation architecture is benchmarked against international frameworks, supporting recognition by domestic and global buyers and regulators.

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2. Orang National Park:

Context: The Indian Peafowl, scientifically known as Pavo cristatus, was recorded for the first time in Assam's Orang National Park and Tiger Reserve on 28 September 2026. The sighting was documented inside the park after earlier field observations near the Rowmari and Hazaribagh Anti-Poaching Camps.

About Orang National Park:

- **Location & Area:** Orang National Park is located in Darrang and Sonitpur districts of Assam, covering about 79.28 sq. km; it comprises alluvial floodplains, grasslands, wetlands and riverine forests and forms part of the Indo-Burma Biodiversity Hotspot.
- **History & Status:** Declared Orang Wildlife Sanctuary in 1985, upgraded to National Park in 1999, and declared India's 49th Tiger Reserve in 2016 under Project Tiger.
- **Major Flora:** Dominated by alluvial grasslands, riverine forests, wetlands and moist deciduous vegetation, with species such as Arjun, Sissoo, Khair, Simul, Jamun and Indian Rosewood.
- **Key Mammals:** Important habitat for the greater one-horned rhinoceros, Royal Bengal tiger, Asian elephant, wild water buffalo, hog deer and swamp deer.
- **Bird Diversity:** Over 220 bird species have been recorded, including Bengal Florican, Lesser Adjutant, Great Hornbill, Spot-billed Pelican and migratory waterbirds.
- **Other Fauna:** Supports Rhesus Macaques, Capped Langurs, Indian Python, King Cobra, Indian Cobra, monitor lizards, freshwater turtles, fish and amphibians.
- **Climate:** Experiences a tropical monsoon climate, with heavy rainfall during June–September, seasonal flooding and annual rainfall exceeding 2,000 mm; winters are relatively cool and suitable for wildlife viewing.
- **Ecological Importance:** Seasonal floods replenish soil nutrients and sustain fertile grasslands and wetlands, while the diverse vegetation helps control soil erosion, maintain ecological balance and support rich biodiversity.

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3. Swell waves:

Context: Recently, the Indian National Centre for Ocean Information Services (INCOIS) has issued a Red Alert across all coastal districts in Keralam, warning residents and authorities of dangerous sea conditions caused by potential swell waves.

About Swell waves:

- Swell waves are long-wavelength surface gravity waves that travel away from their place of origin, often over very long distances.
- They are also called Kallakkadal waves in India, a colloquial term used by fishermen in Kerala.
- They form when distant storms, hurricanes or prolonged strong winds transfer large amounts of energy from the atmosphere to the ocean.
- Unlike ordinary wind waves, swell waves are not primarily generated by local winds near the coast where they arrive.
- The waves gradually organise into groups of similar height and period and can travel thousands of kilometres with relatively little change.
- When these high-energy waves reach the coast, they can cause sudden coastal flooding and inundation, particularly during Kallakkadal events.
- INCOIS operates the Swell Surge Forecast System, launched in 2020, which provides warnings up to 7 days in advance.

4. Dengue:

Context: Kerala scientists recently developed a Dengue Early Warning System (DEWS) using machine learning, six years of case data, and weather variables to forecast district-level dengue trends and help health authorities act before outbreaks intensify.

About Dengue:

- Dengue is a mosquito-borne viral infection caused by the dengue virus (DENV) and is also known as break-bone fever.

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- It is mainly transmitted through the bite of infected Aedes mosquitoes and has four dengue virus types (serotypes); direct human-to-human transmission generally does not occur.
- Dengue is prevalent in tropical and subtropical regions, with transmission often increasing during and after the rainy season.
- Around 400 million infections occur globally each year, of which about 96 million develop illness; a person can be infected multiple times.
- Common symptoms include high fever, headache, body aches, nausea and skin rash, with most patients recovering within 1–2 weeks.
- Severe dengue (dengue hemorrhagic fever) can cause blood-vessel leakage, low platelet count, internal bleeding, shock, organ failure and death; the risk of severe disease is higher with a second infection.
- There is no specific antiviral treatment; management mainly involves supportive care, fluids, rest and appropriate pain relief.

5. Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY):

Context: The government is seeking to make insurance an integral part of aquaculture risk management through the Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY).

About Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY):

- It is a Central Sector Sub-Scheme under Pradhan Mantri Matsya Sampada Yojana (PMMSY), launched in 2024 to formalize the fisheries sector and support fisheries micro and small enterprises.
- It has an investment of over ₹6,000 crore and is implemented for 4 years (FY 2023–24 to FY 2026–27) across all States and UTs.
- It aims to gradually formalize the unorganized fisheries sector and improve access to institutional finance for fisheries micro and small enterprises.
- It provides a one-time incentive for purchasing aquaculture insurance to eligible beneficiaries.
- Performance grants are provided to incentivize fisheries and aquaculture microenterprises.
- It promotes adoption and expansion of fish and fishery product safety and quality-assurance systems.

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- Beneficiaries include fishers, aquaculture farmers, fish workers/vendors, cooperatives, SHGs, FFPOs/FPOs, and other fisheries value-chain participants identified by the Department of Fisheries.

6. UNICORN project:

Context: Japan on Tuesday called on India to fast-track internal official processing of the agreement on the UNICORN (Unified Complex Radio Antenna) naval radar system that the two sides signed during Prime Minister Sanae Takaichi's July India visit. In an exclusive chat with The Hindu on Tuesday, a senior official of the Ministry of Defence of Japan said the next naval exercise of Quad member-states will be held near the Sea of Japan before the year-end.

About UNICORN project:

- **UNICORN (NORA-50):** A shipborne integrated antenna system designed to combine multiple naval communication and sensor antennas within a single mast.
- **Development:** Jointly developed by NEC Corporation, Sampa Kogyo K.K. and The Yokohama Rubber Co. Ltd. of Japan; it is already used on Japan's Mogami-class frigates.
- **Stealth Enhancement:** Conventional ships have several exposed antennas that increase radar cross-section (RCS).
- UNICORN encloses multiple antennas inside a single bar-shaped radome, reducing reflective surfaces and improving stealth.
- **Integrated Systems:** The mast incorporates tactical data links, TACAN, IFF, Electronic Support Measures (ESM) and general communication systems.
- **Operational Benefits:** Besides reducing electronic and radar signatures, it helps minimise mutual interference between antennas and can improve the detection range of external radio signals.
- **Design Features:** Antennas are arranged vertically inside the enclosed mast, while a lightning diverter strip protects the system from lightning strikes at sea.
- **India–Japan Cooperation:** India and Japan signed a Memorandum of Implementation (MOI) on November 15, 2024, for co-development of UNICORN masts—their first military hardware co-development pact.

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- **Indian Production:** Japan provides design and engineering support, while India undertakes integration, adaptation and co-production through BEL, with the system expected to progressively replace conventional communication and sensor masts in Indian Navy platforms.

Quick Bites:

- The Directorate General of Civil Aviation (DGCA) has issued a new Civil Aviation Requirement (CAR), Section 7, Series B, Part XXI, prescribing the ground and flying training syllabus for obtaining a pilot licence for gyroplanes. Gyroplanes generate lift through a freely rotating rotor, while forward thrust is provided by a propeller. They can be used for joyrides, air experience flights and aerial work such as agricultural spraying, banner towing, surveillance and survey operations.
- In pursuance to directions of the Hon'ble Prime Minister during the 51st PRAGATI meeting, the Ministry of Housing and Urban Affairs (MoHUA) has identified 50 model cities under the PRAGATI-50 initiative for demonstrating a higher benchmark of 'Swachhata' through targeted, KPI-based action and by leveraging intensive and technology-enabled monitoring within the framework of Swachh Bharat Mission–Urban 2.0.
- The Department of Drinking Water & Sanitation (DDWS), Ministry of Jal Shakti, organised the 11th edition of the multilingual 'Sujal Gram Samvad' today, providing a platform for direct interaction with Gram Panchayat representatives and local communities on operation and maintenance of rural drinking water systems. This reinforces the government's commitment to community-led water governance under the Jal Jeevan Mission 2.0.
- Trinidad and Tobago is set to become the first Caribbean nation to adopt India's Unified Payments Interface (UPI), a real-time digital payments system developed by the National Payments Corporation of India. The project involves a real-time payments platform modelled on UPI and is linked to technical cooperation between NPCI International Payments Limited and the Ministry of Digital Transformation of Trinidad and Tobago.
- The first consignment of 15,000 A-grade Lilium stems from Ladakh was flagged off on 29 September 2026 from KBR Airport, Leh, for major Indian flower markets. The stems, grown in Choglamsar, Leh, included red, pink, white, yellow and orange varieties. Lilium is a bulbous flowering plant widely cultivated as a premium cut flower, with the consignment featuring stems with 4–5 buds and a shelf life of 5–7 days.

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- The UN General Assembly adopted its first declaration on sea-level rise on September 24, 2026, establishing a common international position on the legal and practical challenges posed by rising seas. It notes the accelerating rise in global mean sea level and affirms that countries threatened by submergence do not automatically lose their statehood or international legal status, even if parts of their territory become submerged.
- The National Digital Tourism Stack, launched by the Ministry of Tourism on World Tourism Day 2026, is an open digital public infrastructure (DPI) aimed at making India's tourism offerings more discoverable, accessible and trustworthy. Developed with ONDC and supported by ICDIA, it will enable tourism providers to offer services across participating platforms through verified identities and credentials, search and discovery, digital payments, ratings and grievance redressal. It will be implemented in phases with a pilot planned for January 2027, involving the Centre, States, UTs and tourism industry.
- Vithya Ramraj, M.R. Povamma, Prachi Singh, and Kiran Pahal ran a great race in the women's 4x400m relay to give India its first athletics gold at the 2026 Asian Games
- OpenAI CEO Sam Altman on Tuesday unveiled GPT-6.1 Sol at the company's DevDay conference in San Francisco, positioning it as a lower-cost model that delivers "very near-Astra-level intelligence at a fifth of the price" for coding and building.

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