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CONTENTS

POLITY AND GOVERNANCE

ARTICLE 142 OF THE CONSTITUTION 5
REGISTERED UNRECOGNISED POLITICAL PARTIES (RUPPS) AND POLITICAL FUNDING 6
EVM TOTALISER 8
APPOINTMENT AND REMOVAL OF ELECTION COMMISSIONERS 10
UNIFORM CIVIL CODE (UCC) 12
ARTICLE 371 AND ASYMMETRIC FEDERALISM 13
KEY PROVISIONS UNDER ARTICLES 371–371J 14
CENSUS 2027 AND POPULATION ENUMERATION 15
ELECTION SYMBOLS (RESERVATION AND ALLOTMENT) ORDER, 1968 17
AUTONOMOUS HILL DEVELOPMENT COUNCILS 18
SHOULD VOTING BE A FUNDAMENTAL RIGHT? 19
DEMAND FOR A 1951 BASELINE FOR NRC IN MANIPUR 21
TULU LANGUAGE AND OFFICIAL-LANGUAGE STATUS 22

INTERNATIONAL RELATIONS

NEW DELHI DECLARATION 23
'CORRECT THE MAP' RESOLUTION 25
AGREEMENT ON ARCTIC SECURITY 28
INDUS WATERS TREATY 29
PARTNERS FOR MULTILATERALISM (P4M) 31
FORUM FOR INDIA-PACIFIC ISLANDS COOPERATION 32
DE-NOTIFIED, NOMADIC AND SEMI-NOMADIC COMMUNITIES 34
9TH RASHTRIYA POSHAN MAAH 2026 35
PM VISHWAKARMA SCHEME 37
NATIONAL INSTITUTE OF MENTAL HEALTH AND NEURO SCIENCES (NIMHANS) 39
COMMUNITY CADRES: LAST MILE ARCHITECTS OF RURAL TRANSFORMATION 40
GLOBAL GENDER GAP INDEX 2026 42
SWACHHATA HI SEVA (SHS) 2026 44
DEEN DAYAL UPADHYAYA GRAMEEN KAUSHALYA YOJANA (DDU-GKY) 2.0 45

SOCIETY AND SOCIAL JUSTICE

FLEXIBLE INFLATION TARGETING (FIT) FRAMEWORK 47
TEN YEARS OF GOVERNMENT E-MARKETPLACE (GEM) 49
SURGE IN FOREIGN-CURRENCY INFLOWS UNDER RBI'S FOREX SWAP FACILITY 50
DISTRICT MINERAL FOUNDATIONS (DMFS) AND PMKKKY 52
WESTERN DEDICATED FREIGHT CORRIDOR (WDFC) 53
CONSUMER PROTECTION (E-COMMERCE) AMENDMENT RULES, 2026 54
DIGITAL INDIA LAND RECORDS MODERNISATION PROGRAMME (DILRMP) 3.0 55
DISTRICT-LEVEL ESTIMATES FOR THE UNINCORPORATED NON-AGRICULTURAL SECTOR 57
DECODING INDIA'S GDP BASE REVISION: IMPROVED MEASUREMENT OF THE UNINCORPORATED SERVICES SECTOR 59
MERCHANT DISCOUNT RATE (MDR) ON UPI TRANSACTIONS 60
NATIONAL INVESTMENT AND INFRASTRUCTURE FUND (NIIF) 61
INDIA'S SOVEREIGN CREDIT RATING UPGRADED 63
ANTI-DUMPING DUTIES ON ALUMINIUM PRODUCTS 64
INDIA'S FIRST LNG-POWERED TRAIN 66
GLOBAL GENDER GAP INDEX 2026 67
AGENTIC COMMERCE 68
TELECOM MANUFACTURING ZONE (TMZ) IN GWALIOR 69
SCHEME TO PROMOTE MANUFACTURING OF SINTERED RARE EARTH PERMANENT MAGNETS 70
PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY) 71

ECONOMIC DEVELOPMENT AND AGRICULTURE

PRADHAN MANTRI KISAN MAANDHAN YOJANA (PM-KMY) 73
SOIL CARBON PAYMENT INITIATIVE 74
LIVESTOCK INSURANCE PORTAL 75
CAZRI MOTH BEAN VARIETIES 76
RED ROT DISEASE THREATENS SUGARCANE PRODUCTION 76
PASHUDHAN BIMA PORTAL 77
RISING SULPHUR PRICES 78
HANGING GLACIERS IN THE HIMALAYAS AND GLOF RISK 79
EL NIÑO 2026–27 AND ITS IMPACT ON THE INDIAN MONSOON 80
KALPASAR PROJECT AND THE GULF OF KHAMBHAT 81
GEOTHERMAL ENERGY POTENTIAL OF PUGA VALLEY 82
GROUNDWATER RECHARGE AND WATERSHED MANAGEMENT 83
DEEP-SEA MINING IN THE INDIAN OCEAN 83
TRANSBOUNDARY HIMALAYAN RIVER BASINS AND CASCADING DISASTERS 84
DEENDAYAL PORT AND THE EMERGING GREEN-SHIPPING FUEL ECONOMY 85
INTERNATIONAL PLACES 86

SCIENCE AND TECHNOLOGY

QUANTUM COMPUTING 95
ARTIFICIAL INTELLIGENCE AND AGENTIC AI 96
WAKEFIELD ACCELERATOR (PLASMA WAKEFIELD ACCELERATION) 98
SEMICON INDIA 2026 99
REVERSE VACCINOLOGY AND UNIVERSAL PNEUMOCOCCAL VACCINE 101
PEPTIDE-BASED TECHNOLOGIES AND PIEZOELECTRIC BIOMATERIALS 102
CYBER-PHYSICAL SYSTEMS (CPS) 103
COSMOCUBE AND PRATUSH MISSIONS 105
NANCY GRACE ROMAN SPACE TELESCOPE 106
ASTRORAD: WEARABLE RADIATION PROTECTION FOR ASTRONAUTS 107
ELIAS 2-24 B: EXOPLANET AND PLANETARY FORMATION 108
BLAZARS 109
ADITYA-L1 AND SOLAR ACTIVITY 111
TRISHNA SATELLITE MISSION 112
EARTH OBSERVATION SATELLITE (EOS-05) 113

SECURITY

RAKSHA: INDIA'S DEFENCE DIPLOMACY ROADMAP 115
FINANCIAL ACTION TASK FORCE (FATF) REPORT ON MONEY LAUNDERING 116
DRDO'S SHIELD PROGRAMME AND HIGH-POWER MICROWAVE TECHNOLOGY 118
INDIA SIGNS UN CONVENTION AGAINST CYBERCRIME 119
POLICE MODERNISATION MISSION (PMM) 121
KAVERI ENGINE: INDIA'S INDIGENOUS AERO-ENGINE DEVELOPMENT 122
NEXT GENERATION MISSILE VESSELS (NGMV) 123
SATELLITE SMART ANTI-AIRFIELD WEAPON (SAT-SAAW) 125
DARK FLEET / SHADOW FLEET 126

HISTORY ART & CULTURE

SAPTAKOTESHWAR TEMPLE (GOA) 129
REVIVAL OF DOGRI SCRIPT (NAMEY DOGRA AKHAR) 129
RAMANATHASWAMY TEMPLE 130
SHEKHAWATI HAVELIS IN UNESCO TENTATIVE LIST 131
UNDERWATER EXCAVATIONS AT POOMPUHAR 131
GOLLALA GUDI TEMPLE, RAMAPPA TEMPLE & MONUMENTS OF NATIONAL IMPORTANCE 132
THIRUKKURAL 132
RAJGHAT EXCAVATIONS (ANCIENT VARANASI) 133
INDIA'S UNESCO TENTATIVE LIST: 5 NEW CULTURAL PROPOSALS 133
DADASAHEB PHALKE AWARD 2024 135
COOL LEADERS AWARD & UNEP COOL COALITION 135
ARCHERY WORLD CUP FINAL GOLD (DHIRAJ BOMMADEVARA) 136

RAMON MAGSAYSAY AWARD 2026 **136**
FAO 100 WOMEN HEROES AWARD (Z T LALRITHANGI) **136**
TENZING NORGAY NATIONAL ADVENTURE AWARDS (TNNAA) 2024 **137**
HISTORICAL PERSONALITIES IN NEWS **138**

POLITY & GOVERNANCE



ARTICLE 142 OF THE CONSTITUTION

Why in News?

The Supreme Court invoked Article 142 to quash FIRs registered against students and protesters involved in demonstrations over the NEET-UG 2026 paper leak, renewing debate over the limits of its extraordinary powers.

Constitutional Provisions

Article 142(1): Empowers the Supreme Court (SC) to pass decrees or orders necessary to ensure "complete justice" in any cause or matter pending before it. Such orders are enforceable throughout India.

Article 142(2): Enables the SC to secure attendance, order the discovery or production of documents, and investigate or punish contempt of itself, subject to applicable parliamentary law.

Significance

Substantive justice: Provides remedies where ordinary legal procedures may be inadequate.

Protection of rights: Enables relief for individuals and vulnerable groups.

Flexibility: Allows case-specific solutions in exceptional circumstances.

Important Judicial Precedents

Prem Chand Garg v. Excise Commissioner (1962): Article 142 cannot override constitutional provisions or fundamental rights.

September 2026



INTERNATIONAL RELATIONS

NEW DELHI DECLARATION

Why in news?

Recently, India hosted the 18th BRICS Summit (2026) in New Delhi, marking its fourth BRICS Chairship, under the theme "Building for Resilience, Innovation, Cooperation and Sustainability." The summit concluded with the unanimous adoption of the New Delhi Declaration, focusing on multilateralism, conflict prevention and equitable global governance.

Outcomes of the 18th BRICS Summit (2026)

Financial, Economic & Trade:

Local Currency Trade: Directs the Payment Task Force to build interoperable settlement channels, reducing reliance on Western financial networks.

Risk & Liquidity: Endorses a GIFT City BRICS Risk Lab for insurance resilience and amends the Contingent Reserve Arrangement (CRA) to provide IMF-independent emergency liquidity.

Trade Facilitation: Adopts the Jaipur Consensus for MSME invoice discounting, executes the AEO Action Plan 2026 for customs enforcement, and deploys NDB multilateral guarantees to mobilize private infrastructure capital.

Science, Tech & Digital Infrastructure:

Strategic Autonomy: Tasked a direct BRICS submarine cable study and launched the GRAIN framework to fund megascience projects independently.

Space & Grids: Expands the Remote Sensing Constellation, initiates the BRICS Space Council, and sets up a Smart Grids Digital Centre of Excellence.

Digital Goods: Creates a BRICS DPI Repository to share open-source identity and payment architecture.

Agriculture & Food Security:

Market Mechanisms: Targets a 2027 rollout for the BRICS Grain Exchange to stabilize commodity pricing.

Farming Frameworks: Establishes AGRIN for seed and germplasm cooperation, alongside dedicated hubs for digital agriculture and agroecology.

Health & Medicine:

Translational Innovation: Launches the AMTZ-led BRICS BioDesign Centre to develop low-cost medical tech for the Global South.

Well-Being: Establishes a NIMHANS-led mental health training network and formalized roadmaps for traditional medicine integration and healthy lifestyles (2026–2029).

Transport, Logistics & Climate:

Supply Chains: Adopts the GVC Action Plan (2026–2030) and a unified Logistics Cooperation Framework.

Green Mobility & Ecology: Debuts the Sustainable Aviation Fuels Forum, BRICS Urban Mobility Hub, and joint landscape-level wildfire and anti-desertification protocols.

Security, Law & Society:

Crime & Terror: Demands adoption of the UN Comprehensive Convention on International Terrorism; forms an asset-recovery repository to trace fugitive economic offenders.

Labor & Culture: Establishes BRICS CONNECT to safeguard gig workers and portable social security; introduces an Artist Registry to block illicit antiquities trade.

Geopolitical Mandates:

Global Governance: Backs UNSC permanent representation for Africa (Ezulwini Consensus), India, and Brazil; supports India's "3R" reform roadmap (Representation, Responsiveness, Rule-making).

Multilateral Accession: Endorses WTO bids for Ethiopia and Iran, backs Ethiopia and Indonesia for ICAO Council seats, and confirms China as the 2027 summit host.

BRICS and Global South

Origin to Formal Bloc:

The acronym 'BRIC' was originally coined by Goldman Sachs in 2001. It formalized as a political grouping in 2006, held its first summit in Yekaterinburg (2009), and became BRICS when South Africa joined in 2010.

Expanded Membership & Economic Weight: The bloc now comprises 11 full members (Brazil, China, Egypt, Ethiopia, India, Indonesia, Iran, Russia, Saudi Arabia, South Africa, and the UAE). Together, they represent a massive 49.5% of the global population, 40% of global GDP, and 26% of global trade.

New "Partner Country" Framework: To accommodate growing global interest without altering the core structure, 10 countries (including Belarus, Malaysia, Nigeria, Thailand, and Vietnam) were inducted as Partner Countries in 2025, broadening opportunities for South-South cooperation.

Reforming Global Governance: Beyond economic coordination, BRICS acts as a collective voice demanding greater equity and representation in the International Monetary Fund (IMF), World Bank, and the WTO, pushing back against protectionism.

Presidency Rotation: Historically, the Presidency rotates annually on January 1st based on the acronym. Due to the recent rapid expansion, a new rotation formula is currently being deliberated among member states.

'CORRECT THE MAP' RESOLUTION

Why in news?

Recently, the United Nations General Assembly (UNGA) adopted the 'Correct the Map' Resolution to promote world maps that accurately represent the relative sizes of continents.

Objective of the Resolution: It encourages the use of equal-area map projections that accurately preserve the relative sizes of continental landmasses. The mandate is advisory and non-binding. To achieve "cognitive justice," the resolution urges a transition away from the Mercator projection, which was created by Gerardus Mercator in the 16th century for maritime navigation.

Why the proposal?

The major reason behind this proposal, is the distortion created by the Mercator map, which has been widely used since the 16th century.

While the map is useful for navigation, it does not show the actual size of land areas accurately.

The Mercator projection, created by Flemish cartographer Gerardus Mercator in 1569, makes regions closer to the poles appear much larger than they actually are.

As a result, Africa appears much smaller in comparison with countries and regions in the northern hemisphere. A well-known example to quote is Greenland, which appears almost similar in size to Africa on the Mercator map. Whereas in reality, Africa is around 14 times larger than Greenland.

Supporters of the "Correct the Map" campaign argue that this visual distortion has influenced how people understand Africa's size, resources, population and economic potential. They believe that maps can shape perceptions of the importance of different regions.

African countries have also linked the issue to the legacy of colonialism. They argue that changing the map can help address long-standing geographical and educational perceptions and present Africa more fairly.

Mercator projection:

This projection severely distorts landmass sizes by artificially inflating polar regions (making Greenland appear comparable to Africa) while shrinking equatorial continents like South America and Africa.

Origin & Purpose: Conformal, cylindrical projection created by Gerardus Mercator (1569) specifically for maritime navigation.

Core Advantage (Rhumb Lines): Preserves angles, local shapes, and constant compass bearings as straight lines, allowing navigators to plot direct courses without recalculating bearings.

Mathematical Trade-Off: To match the horizontal stretching of parallel meridians toward the poles, the vertical scale expands at the exact same rate ($\sec \phi$).

Primary Distortion: Severely inflates high-latitude landmasses while underrepresenting equatorial regions (e.g., Greenland appears roughly the size of Africa despite being 14 times smaller).

The Equal Earth Alternative:

The UN encourages adopting the Equal Earth projection (introduced in 2018). This equal-area projection accounts for the Earth's curvature, accurately depicting relative proportions (showing Africa is nearly 14 times larger than Greenland, and Brazil is five times larger than Alaska).

Significance:

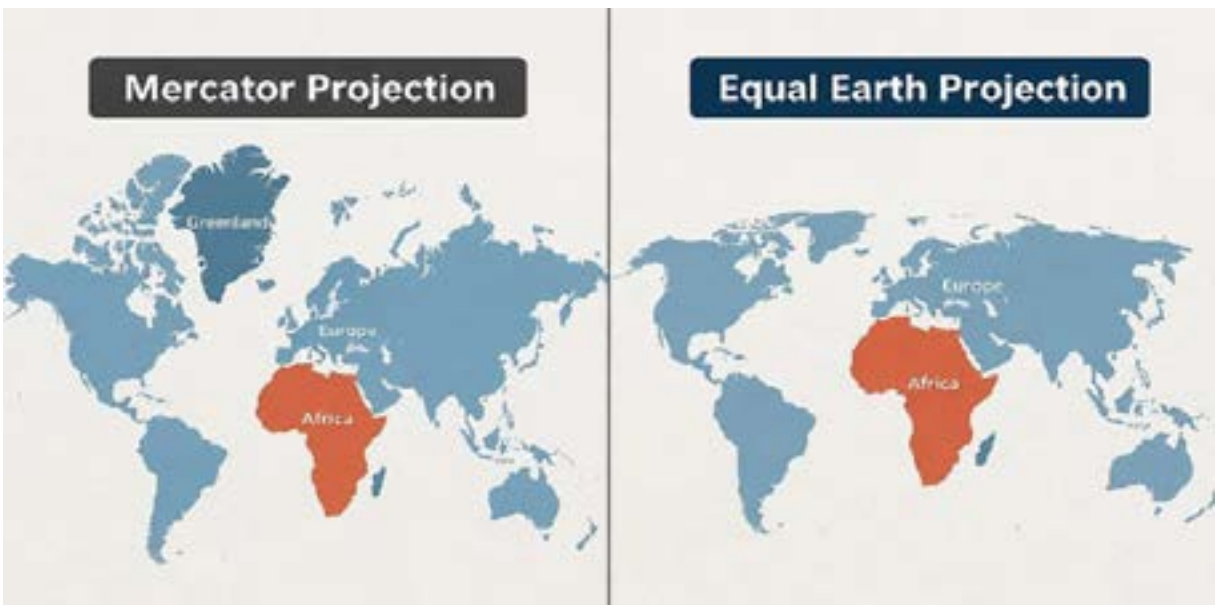
Rectifies Scale Distortions: Replaces high-latitude exaggeration with equal-area projections, restoring the true proportional sizes of Africa, South America, and India.

Dismantles Eurocentric Bias: Counters centuries of Mercator-driven representations that visually amplified the West while diminishing the Global South.

Exposes the Politics of Cartography: Highlights that maps reflect power dynamics rather than pure neutrality, shaping perceptions of territory, geopolitics, and global importance.

Enhances Critical Geographic Literacy: Teaches students and educators to recognize projection trade-offs, fostering critical thinking about how visual data influences worldview.

Encourages Purpose-Driven Map Use: Establishes functional standards—reserving Mercator strictly for navigational heading while using equal-area projections for comparative size and demographic analysis.



India's Stance:

Conditional Support (EoV): India voted in favor while issuing an Explanation of Vote to decouple support for physical cartographic accuracy from political boundary validation.

Separation of Geographies: Clarified that the resolution governs physical representation only, granting no legitimacy to depicted borders, place names, or the status of disputed territories.

Sovereignty Redline: Mandated that any UN-backed map must depict Jammu & Kashmir and Ladakh strictly per India's official boundaries.

Border Discrepancy Critique: Flagged inconsistent UN cartography, pointing out that while the Line of Control (LoC) receives explanatory annotations, equivalent clarifications are missing for claim lines in Arunachal Pradesh and Aksai Chin.

AGREEMENT ON ARCTIC SECURITY

Why in news?

Recently, the US, Denmark and Greenland signed a trilateral agreement on the sidelines of the UN General Assembly in New York to enhance Arctic and North Atlantic security cooperation.



About the agreement:

It amends the 1951 US–Denmark Defense Agreement on Greenland and aims to strengthen defence cooperation while respecting Greenland's sovereignty and self-determination. It allows the US to modernise and expand activities at Pituffik Space Base and establish additional defence areas at Narsarsuaq and Mestersvig in Greenland.

The agreement provides

the US military wider access to Greenland, including movement of aircraft, vessels and undersea access, and allows defence cooperation including the possible establishment of the "Golden Dome" missile defence system. It supports stronger NATO engagement in the Arctic through enhanced planning, military presence, exercises and intelligence cooperation.

The agreement restricts non-NATO military presence in Greenland and prevents foreign control or influence in sensitive sectors, including critical infrastructure and resource extraction.

Significance of the agreement:

Greenland's Arctic location, proximity to North America and Europe, resource potential, emerging shipping routes and strategic importance amid growing competition involving major powers such as Russia and China make it a key region for Arctic security and geopolitics.

INDUS WATERS TREATY

Why in news?

Recently, India rejected the Hague-based Court of Arbitration's (CoA) ruling on the "abeyance" of the Indus Waters Treaty (IWT), terming it illegally constituted and asserting that it has no jurisdiction over India's sovereign decisions.

About Indus Waters Treaty (IWT), 1960

The IWT is a water-distribution treaty brokered by the World Bank and signed between India and Pakistan in Karachi in 1960.

Eastern Rivers: The waters of the Beas, Ravi, and Sutlej were allocated to India for exclusive, unrestricted use.

Western Rivers: The waters of the Chenab, Indus, and Jhelum were allocated largely to Pakistan. India is permitted limited, non-consumptive uses on the western rivers.

This includes domestic use, agriculture, and run-of-the-river hydroelectric power generation, provided India adheres to strict technical parameters outlined in the treaty.

Dispute Resolution Mechanism under IWT:

Permanent Indus Commission (PIC): All minor "questions" are first addressed bilaterally by the PIC.

Neutral Expert: Unresolved technical "differences" are referred to a highly qualified engineer (Neutral Expert) appointed by the World Bank.

Court of Arbitration (CoA): If the Neutral Expert decides the issue is legal rather than technical, or if both parties agree, the matter escalates to a formal "dispute" before an ad-hoc CoA.

Court of Arbitration's Ruling Regarding IWT:

Treaty Remains in Force: The CoA ruled that India's decision to place the IWT in "abeyance" following the April 2025 Pahalgam terror attack was not permissible under the treaty or international law.

Terrorism Not a Ground for Suspension: The court stated that the treaty governs only water rights and does not address terrorism or the use of force.

It concluded that cross-border terrorism does not establish a material breach of the water pact by Pakistan.

Ratle Hydroelectric Project: The Court also imposed interim restrictions on certain construction activities at the Ratle project on the Chenab River until 90 days after the Neutral Expert gives a final decision, expected in 2027.

India's Stand:

Parallel Proceedings: In 2016, Pakistan sought a Court of Arbitration, while India requested a Neutral Expert to examine technical issues.

Violation of Graded Mechanism: India argues that simultaneous proceedings violate the IWT's sequential dispute-resolution mechanism.

World Bank's role: The World Bank paused both processes in 2016 but allowed them to proceed simultaneously in 2022. India joined the Neutral Expert process but boycotted the CoA proceedings.

India maintains that CoA has no jurisdiction over India's decision to keep the IWT in abeyance.

PARTNERS FOR MULTILATERALISM (P4M)

Why in news?

Recently, the Partners for Multilateralism (P4M) initiative was launched on the margins of the 81st UN General Assembly, with Australia, Barbados, Brazil, Canada, the European Union, India and Kenya as initial co-sponsors.

About Partners for Multilateralism (P4M):

Partners for Multilateralism is an open and flexible platform intended to bring together countries from different regions and political traditions that support international law, multilateral cooperation, peace and inclusive prosperity.

Its central proposition is that global challenges such as conflicts, climate change, pandemics, artificial intelligence, economic insecurity and supply-chain disruptions cannot be effectively addressed by individual countries acting alone. Unlike a formal alliance, P4M is envisaged as a network for dialogue, coalition-building and practical cooperation, with participation open to additional countries.

Objectives of P4M:

Reform of multilateral institutions: P4M supports making multilateral institutions more representative and accountable. The declaration specifically supports efforts such as UN80 to reform and strengthen the UN system.

Upholding international law: The members reaffirm principles including sovereign equality, territorial integrity, peaceful settlement of disputes and prohibition of the threat or use of force.

Strengthening economic cooperation: The initiative supports resilient and diversified supply chains, reform of the multilateral trading system and improvements in the international financial architecture.

Addressing emerging technologies: P4M identifies AI and digital transformation among the areas requiring stronger international coordination.

Promoting sustainable development: The declaration links multilateral cooperation with the Paris Agreement, Sustainable Development Goals, global health, climate action and poverty reduction.

India's Role and Relevance:

India has long advocated reformed multilateralism, particularly greater

representation of developing countries in global decision-making.

P4M therefore complements India's broader engagement with platforms such as the G20, BRICS, G4 and Non-Aligned Movement.

Greater voice for the Global South: India can use the platform to advance issues concerning developing countries, including development finance, food and energy security, technology access, climate justice and reform of international institutions.

Strategic autonomy: P4M provides India with another diplomatic platform without requiring it to align exclusively with any major-power bloc.

Reasons for formation of P4M:

The post-Second World War multilateral system is facing pressure from geopolitical rivalry, unilateral actions, protectionism, sanctions, conflicts and weakening respect for international norms.

Institutions created largely in the post-1945 period do not fully reflect the contemporary distribution of economic, demographic and political power.

Developing countries are looking for greater representation in institutions such as the UN Security Council, IMF, World Bank and global trade architecture.

Issues such as climate change, global health, AI governance, cyber risks, financial instability and supply-chain disruptions transcend national borders.

There is a need to strengthen collective mechanisms for providing global public goods.

FORUM FOR INDIA-PACIFIC ISLANDS COOPERATION

Why in news?

Recently, the External Affairs Minister chaired a meeting of the Foreign Ministers of the Forum for India-Pacific Islands Cooperation (FIPIC), on the sidelines of the 81st United Nations General Assembly in New York.

About FIPIC:

It is a multilateral platform established by India to enhance cooperation with the Pacific Island countries.

It was established in 2014 during the Prime Minister of India's visit to Fiji.

Member countries: It includes 14 of the island countries – Cook Islands, Fiji,

Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

FIPIC Summits held: Since 2014 three FIPIC summits have been held, 1st 2014 (Suva, Fiji), 2nd 2015 (Jaipur, India), 3rd 2023 (Port Moresby, Papua New Guinea).

In line with the "Act East Policy", through FIPIC, India has primarily focused its efforts on the Pacific Islands.

Economic Cooperation: At this moment, total annual trade of about $300 million between the Indian and Pacific Island countries, whereas exports are around $200 million and imports are around $100 million.





SOCIAL JUSTICE

DE-NOTIFIED, NOMADIC AND SEMI-NOMADIC COMMUNITIES

Why in News?

The Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic Communities (DWBDNC) organised SAMAVESH UTSAV on 1 September 2026 to promote awareness and inclusion of these historically marginalised communities.

Who are DNTs, NTs and SNTs?

De-notified Tribes (DNTs): Communities notified as "Criminal Tribes" under the colonial Criminal Tribes Act, 1871, and de-notified following its repeal in 1952.

Nomadic Tribes (NTs): Communities that traditionally move from place to place in search of livelihood.

Semi-Nomadic Tribes (SNTs): Communities that migrate periodically but maintain a relatively semi-settled existence.

Institutional Framework

Renke Commission (2008): Examined the socio-economic conditions of these communities and recommended welfare measures.

National Commission for DNTs (NCDNT): Constituted in 2015 to identify and study these communities; it submitted its report in 2017.

DWBDNC: Established through a government notification in 2019 under the Ministry of Social Justice and Empowerment. It is registered as a society under the Societies Registration Act, 1860.

Major Challenges

Historical stigma: Colonial criminalisation continues to result in discrimination and social exclusion.

Lack of identification: Several communities remain unclassified, affecting access to targeted welfare benefits.

Documentation barriers: Nomadic lifestyles and lack of permanent addresses restrict access to identity documents and government schemes.

Economic exclusion: Limited access to education, healthcare, housing and stable livelihoods.

Fragmented classification: Communities are categorised differently across States under SC, ST and OBC lists, complicating policy implementation.

Way Forward

Complete identification and classification of all DNT, NT and SNT communities.

Ensure portable welfare benefits and easier access to identity documents.

Strengthen education, healthcare, housing and livelihood support.

Promote traditional skills and crafts through market linkages.

Ensure community participation in policymaking.

9TH RASHTRIYA POSHAN MAAH 2026

Why in News?

The Ministry of Women and Child Development launched the 9th Rashtriya Poshan Maah on 9 September 2026 at Varanasi, Uttar Pradesh. The month-long nationwide campaign was observed from 9 September to 8 October 2026 under the theme “Hamari Anganwadi, Hamari Jimmedari” (Our Anganwadi, Our Responsibility).

About Rashtriya Poshan Maah

Observed every September as a nationwide Jan Andolan to promote nutrition awareness and behavioural change.

It was initiated under POSHAN Abhiyaan, launched in March 2018.

Implemented under Mission Saksham Anganwadi and POSHAN 2.0, the unified

National Nutrition Mission of the Ministry of Women and Child Development.

Focuses on pregnant women, lactating mothers, children, adolescents and their families.

Five Key Focus Areas of Poshan Maah 2026

Dietary Diversity and Adequate Protein: Promotes balanced diets containing diverse food groups, locally available nutritious foods and adequate plant- and animal-based proteins.

Fresh Hot Cooked Meals (HCM): Improves the quality of supplementary nutrition through menu rotation, hygiene and quality assurance at Anganwadi Centres.

Community Ownership and Accountability: Strengthens Anganwadi Management Committees (AMCs) and mandates the display of Supplementary Nutrition Programme (SNP) Menu Boards to improve transparency and community participation.

Nutrition and Early Childhood Care and Education (ECCE): Highlights the relationship between adequate nutrition, cognitive development, early learning and childhood growth.

Maternal Nutrition and First 1,000 Days: Commemorates ten years of Pradhan Mantri Matru Vandana Yojana (PMMVY), emphasizing maternal nutrition, healthcare-seeking behavior and income support during pregnancy.

Significance

Combating malnutrition: Addresses undernutrition, micronutrient deficiencies and anemia.

Human capital development: Improves physical growth, cognitive development and learning outcomes.

Community participation: Transforms nutrition from a government programme into a shared social responsibility.

Women's empowerment: Promotes maternal health and nutrition during pregnancy and lactation.

Accountability: Strengthens monitoring and transparency in Anganwadi service delivery.

Challenges

Poor dietary diversity, regional disparities, inadequate infrastructure, staff shortages and gaps in monitoring continue to affect nutrition outcomes.

PM VISHWAKARMA SCHEME

Why in News?

As the PM Vishwakarma Scheme completed three years in September 2026, the Ministry of MSME reported that its target of registering 30 lakh artisans and craftspeople had been achieved.

About the Scheme

Launch: 17 September 2023.

Nodal Ministry: Ministry of Micro, Small and Medium Enterprises (MSME).

Nature: Central Sector Scheme, fully funded by the Union Government.

Outlay: ₹13,000 crore for FY 2023–24 to FY 2027–28.

Coverage: 18 traditional trades.

Objective: Provide end-to-end support to artisans and craftspeople working with hands and tools, improve their socio-economic status and integrate their products into domestic and global value chains.

Six Key Components

Recognition: PM Vishwakarma Certificate and ID Card to provide formal recognition to artisans.

Skill Upgradation: Basic training of 5–7 days and advanced training of 15 days or more, with a stipend of ₹500 per day.

Toolkit Incentive: Financial support of up to ₹15,000 through e-vouchers to purchase modern tools.

Credit Support: Collateral-free enterprise development loans of up to ₹3 lakh in two tranches:

First tranche: ₹1 lakh for 18 months.

Second tranche: ₹2 lakh for 30 months. Loans carry a concessional interest rate of 5%, with government interest subvention of 8%.

Digital Transaction Incentive: ₹1 per eligible digital transaction, up to 100 transactions per month.

Marketing Support: Branding, quality certification, e-commerce linkages, trade fairs and exhibitions.

Eligibility and Trades Covered

Applicants must be at least 18 years old and self-employed in the unorganised sector.

Benefits are restricted to one member per family.

The scheme covers 18 trades, including carpenters, boat makers, blacksmiths, goldsmiths, potters, sculptors, cobblers, masons, basket makers, traditional toy makers, barbers, washermen, tailors and fishing-net makers.

Registration is facilitated through Common Service Centres (CSCs), followed by a three-tier verification process involving local bodies, District Implementation Committees and a Screening Committee.

Significance

Preservation of traditional skills: Strengthens India's traditional craftsmanship and the Guru-Shishya tradition.

Formalisation: Brings informal artisans into the formal MSME ecosystem through Udyam Assist Platform.

Financial inclusion: Improves access to institutional credit and reduces dependence on informal lenders.

Employment generation: Promotes self-employment and entrepreneurship.

Market integration: Connects traditional producers with digital platforms and wider markets.

Challenges

Limited awareness, difficulties in accessing institutional credit, competition from mass-produced goods, inadequate marketing infrastructure and the need to balance modernisation with preservation of traditional techniques remain concerns.

Way Forward

Strengthen market linkages, simplify credit access, improve product design and quality, and promote geographical indication (GI) tagging wherever appropriate.

NATIONAL INSTITUTE OF MENTAL HEALTH AND NEURO SCIENCES (NIMHANS)

Why in News?

The 18th BRICS Summit (September 2026) recognised NIMHANS, Bengaluru, as the coordinating Centre of Excellence for the proposed BRICS Network of Centres of Excellence on Mental Wellness. The initiative aims to strengthen cooperation among BRICS countries in mental-health research, training and policy development.

About NIMHANS

Location: Bengaluru, Karnataka.

Status: Institute of National Importance under the NIMHANS Act, 2012.

Deemed University: Declared in 1994.

Nature: Premier institution specialising in mental health and neurosciences.

Core mandate: Patient care, research and education/training in mental health, neurology and neurosurgery.

Major Functions

Specialised Healthcare: Provides tertiary-level treatment for psychiatric, neurological and neurosurgical disorders.

Research: Conducts advanced research in mental health, brain sciences, neurological disorders and rehabilitation.

Education and Training: Offers postgraduate, doctoral and specialised training programmes for healthcare professionals.

Policy Support: Contributes to national mental-health policies and **programmes.**

Community Mental Health: Promotes accessible mental-health services, awareness and reduction of stigma.

Important Contributions

District Mental Health Programme (DMHP): The Bellary model of community-based mental healthcare, pioneered by NIMHANS, contributed to the development of the national programme.

Tele-MANAS: NIMHANS is the designated nodal centre for the Government of India's tele-mental-health initiative.

National Mental Health Policy: Has contributed to its formulation and promoted rights-based mental healthcare.

COMMUNITY CADRES: LAST MILE ARCHITECTS OF RURAL TRANSFORMATION

Why in News?

On 20 September 2026, the Ministry of Rural Development highlighted the role of community cadres in strengthening last-mile delivery of rural development programmes. India has over 9 lakh Community Resource Persons (CRPs), supported by ASHAs, Anganwadi Workers, Swachhagrahis, Awaas Mitras and other grassroots functionaries.

What is the Community Cadre Approach?

It is a decentralised service-delivery mechanism that uses trained members of rural communities—many of them women from Self-Help Groups (SHGs)—to connect government institutions with rural households.

These cadres generally receive activity-based honorariums and incentives under respective government schemes rather than regular salaries.

DAY-NRLM is a key institutional foundation of this approach. It has mobilised over 10 crore rural households into approximately 92 lakh SHGs.

Major Types and Their Roles

Livelihoods and Entrepreneurship

Krishi Sakhis: Promote improved agricultural practices.

Pashu Sakhis: Support livestock management and animal health.

Matsya Sakhis: Assist fisheries-based livelihoods.

Van Sakhis: Support forest-based livelihoods.

CRP-EPs and Udyog Sakhis: Promote rural enterprises and market linkages.

Financial Inclusion

Bank Sakhis and Business Correspondent Sakhis provide doorstep banking.

Financial Literacy CRPs promote awareness about savings, credit, insurance and pensions.

Bank Sakhis have facilitated ₹13.41 lakh crore in bank credit to SHGs since 2013–14.

Health and Nutrition

ASHAs act as the first point of contact for rural healthcare.

Anganwadi Workers support nutrition, maternal and child health, and Early Childhood Care and Education.

Sanitation, Water and Housing

Swachhagrahis promote sanitation and behavioural change.

Pani Samitis/Village Water and Sanitation Committees support drinking-water management.

Nal Jal Mitras assist with minor repairs and maintenance.

Awaas Mitras facilitate beneficiaries under PMAY-G.

Significance

Last-mile governance: Bridges information, access and implementation gaps.

Women's empowerment: Transforms SHG members from scheme beneficiaries into trained service providers and local leaders.

Convergence: Connects livelihoods, health, nutrition, sanitation, water and housing services at the household level.

Community participation: Uses local knowledge and trust to improve programme uptake.

Challenges

Inadequate remuneration and limited social security.

Multiple responsibilities and workload without corresponding compensation.

Uneven availability of specialised cadres across sectors.

Dependence on incentive-based work can affect continuity and accountability.

Way Forward

Provide fair remuneration, social protection, continuous training and clear role definitions. Strengthen coordination between Panchayats, SHG federations and frontline departments

GLOBAL GENDER GAP INDEX 2026

Why in News?

The World Economic Forum (WEF) released the 20th edition of the Global Gender Gap Report on 16 September 2026. India retained the 131st rank among 145 economies, highlighting persistent gender disparities.

About the Index

Published annually by the World Economic Forum (WEF) since 2006.

Measures the extent of gender-based disparities and tracks progress towards gender parity across four dimensions.

Scores indicate the percentage of the gender gap that has been closed; 100% represents complete parity.

It measures gaps between women and men, rather than the overall level of development or women's empowerment.

Four Dimensions

Economic Participation and Opportunity: Labour-force participation, wage equality, estimated earned income and representation in senior and professional positions.

Educational Attainment: Gender gaps in literacy and enrolment in primary, secondary and tertiary education.

Health and Survival: Sex ratio at birth and gender differences in healthy life expectancy.

Political Empowerment: Representation of women in Parliament, ministerial positions and years in executive office.

Key Findings – 2026

India: Ranked 131st out of 145 economies, with an overall parity score of 64.5%, below the global average of 69.2%.

Global gender gap: 69.2% has been closed, an improvement of 0.4 percentage points over the previous year.

Top performer: Iceland ranked first for the 17th consecutive year, closing approximately 93% of its gender gap.

Lowest performer: Chad.

At the current rate of progress, achieving global gender parity is estimated to

take 120 years.

Pradhan Mantri Kisan Maandhan Yojana (PM-KMY)

Why in News?

The Pradhan Mantri Kisan Maandhan Yojana completed seven years on 12 September 2026. As of February 2026, over 24.96 lakh farmers had enrolled under the scheme.

About the Scheme

Launched on 12 September 2019.

It is a Central Sector Scheme administered by the Department of Agriculture and Farmers Welfare, Ministry of Agriculture and Farmers Welfare.

Implemented in partnership with the Life Insurance Corporation of India (LIC), which manages the pension fund.

It is a voluntary and contributory old-age pension scheme for small and marginal farmers.

Eligibility

Small and marginal farmers with cultivable landholdings of up to 2 hectares.

Entry age: 18–40 years.

The farmer's name must appear in the land records of the respective State/UT as on 1 August 2019.

Certain categories, including income-tax payers, institutional landholders and persons covered under specified statutory social security schemes, are excluded.

Key Features

Assured Pension: Eligible subscribers receive a minimum assured pension of ₹3,000 per month after attaining 60 years of age.

Shared Contribution: Farmers contribute ₹55–₹200 per month, depending on their age at enrolment. The Central Government makes an equal matching contribution.

Family Pension: If the pensioner dies, the spouse receives 50% of the pension (₹1,500 per month), subject to conditions.

PM-KISAN Linkage: Beneficiaries can voluntarily use their PM-KISAN benefits to pay their pension contributions through an auto-debit facility.

Enrolment: Registration is facilitated through Common Service Centres (CSCs).

Significance

Provides social security to farmers with limited savings and uncertain agricultural incomes.

Reduces old-age financial vulnerability and promotes financial inclusion.

Complements income-support initiatives such as PM-KISAN by addressing farmers' retirement security.

SWACHHATA HI SEVA (SHS) 2026

Why in News?

The nationwide Swachhata Hi Seva 2026 campaign was launched on 17 September 2026 by the Ministry of Jal Shakti and the Ministry of Housing and Urban Affairs. Its theme is "Swachhata Mein Sahbhag; Swachh Bharat, Viksit Bharat."

About the Campaign

Observed annually since 2017, Swachhata Hi Seva is a campaign to mobilise citizens towards voluntary cleanliness activities and collective responsibility.

It is organised as a prelude to Swachh Bharat Diwas, observed on 2 October, the birth anniversary of Mahatma Gandhi.

The 2026 campaign follows a Whole of Government and Whole of Society approach, involving government departments, local bodies, educational institutions and citizens.

It focuses on both rural and urban sanitation.

Five Key Pillars of SHS 2026

Transformation of Cleanliness Target Units (CTUs): Identification and transformation of neglected garbage spots and cleanliness drives at public places.

Swachh Paathshala – Yuva for Swachhata: Engaging students and youth through exposure visits to waste-management facilities, awareness programmes and competitions.

SafaiMitra Suraksha Evam Samman Shivirs: Health check-ups, distribution of personal protective equipment (PPE), welfare-scheme linkages and recognition of sanitation workers.

Jan Bhagidari for Swachhata: Citizen participation, awareness about Solid Waste Management Rules, 2026, and promotion of four-way waste segregation.

Swachhata Se Samriddhi: Promoting circular economy, recycling, reuse, waste-to-wealth and waste-to-art initiatives.

DEEN DAYAL UPADHYAYA GRAMEEN KAUSHALYA YOJANA (DDU-GKY) 2.0

Why in News?

The Ministry of Rural Development is rolling out DDU-GKY 2.0, with training batches across States and UTs commencing from October 2026. Around 70,000 rural youth are expected to begin training in the first phase.

About the Scheme

Launched on 25 September 2014 under the Deen Dayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM).

Implemented by the Ministry of Rural Development.

It is a placement-linked skill development programme targeting poor rural youth aged 15–35 years.

Revised DDU-GKY 2.0 guidelines were notified in May 2025, with implementation from FY 2025–26.

Key Features of DDU-GKY 2.0

Industry-oriented training: Courses are aligned with industry demand, including healthcare, renewable energy, electric vehicle maintenance, logistics, hospitality and the care economy.

Structured training: Minimum 576 training hours, including 396 hours of domain training and 180 hours of non-domain training covering communication, employability, digital literacy and entrepreneurship.

Employment outcomes: Minimum placement duration increased from three to six months. The framework targets at least 70% placement, including a maximum of 20% in self-employment or gig employment.

Post-placement support: One-year tracking, counselling, migration assistance and opportunities for upskilling and reskilling.

Financial assistance: Placed candidates receive ₹7,620 as post-placement support over six months. An additional ₹5,000 retention support is provided for eligible candidates completing 365 days of employment.

Social inclusion: Mandatory coverage targets include SC/ST communities (50%), women (33%) and persons with disabilities (5%).

Special Initiatives

Roshni: Skill training for youth in Left-Wing Extremism-affected and Aspirational Districts.

Himayat: Skill development and employment support for youth in Jammu and Kashmir and Ladakh.

North-East: 10% of the scheme allocation is earmarked for North-Eastern States.



Economic Development & Agriculture

FLEXIBLE INFLATION TARGETING (FIT) FRAMEWORK

Why in News?

In 2026, India's Flexible Inflation Targeting (FIT) framework completed 10 years since its introduction in 2016. The framework has been renewed for another five-year period, from April 2026 to March 2031, retaining the CPI inflation target of 4% with a tolerance band of ±2 percentage points.

What is Flexible Inflation Targeting?

FIT is a monetary policy framework under which the central bank aims to maintain inflation around a specified target while retaining flexibility to consider economic growth and changing economic conditions.

Legal basis: The Reserve Bank of India Act, 1934, was amended in 2016 to provide a statutory basis for FIT.

Inflation measure: Consumer Price Index (CPI) inflation, which measures changes in retail prices.

Target-setting authority: The Central Government determines the inflation target in consultation with the RBI once every five years.

Monetary Policy Committee (MPC): A six-member committee determines the policy repo rate required to achieve the inflation target. The RBI Governor chairs the committee.

Key Features of India's FIT Framework

Target: 4% CPI inflation.

Tolerance band: 2% as the lower limit and 6% as the upper limit.

Policy instrument: The repo rate is a key instrument for influencing borrowing costs, aggregate demand and inflation.

Accountability: Failure occurs when average inflation remains above 6% or below 2% for three consecutive quarters. The RBI must explain the reasons, propose remedial measures and estimate the time required to restore the target.

Significance of the FIT Framework

Price stability: Helps contain persistent inflation and protects the purchasing power of households, particularly low-income groups.

Inflation expectations: A credible numerical target helps households, businesses and investors form more predictable expectations about future prices.

Growth–inflation balance: FIT allows monetary policy to respond to changing economic conditions rather than requiring immediate correction of every short-term inflation fluctuation.

Monetary policy transmission: Changes in the repo rate influence lending and deposit rates, consumption, investment and aggregate demand.

Transparency and accountability: Published MPC resolutions, voting records and minutes improve the transparency of monetary policy decisions.

Key Challenges

Supply-side inflation: Food-price shocks caused by deficient rainfall, crop losses and supply-chain disruptions cannot be resolved through interest-rate changes alone.

Growth trade-off: Raising interest rates to control inflation may increase borrowing costs and moderate private investment and consumption.

External shocks: Crude oil prices, exchange-rate movements and global commodity prices can complicate inflation management.

Measurement concerns: The relative importance of food, fuel and other items in the CPI basket raises questions about the appropriate inflation measure and the need for periodic revisions.

Way Forward

The RBI should continue evidence-based monetary policymaking while strengthening inflation forecasting and communication. Coordination with the government on food supply, buffer stocks, logistics and trade measures can complement monetary policy. Periodic assessment of the CPI basket and the framework's performance can help preserve its credibility and adaptability.

TEN YEARS OF GOVERNMENT E-MARKETPLACE (GEM)

Why in News?

The Government e-Marketplace (GeM), launched on 9 August 2016, completed 10 years of operations in August 2026. Over the decade, it facilitated cumulative procurement worth more than ₹20 lakh crore, strengthening transparency, efficiency and inclusiveness in public procurement.

About GeM

Nodal Ministry: Ministry of Commerce and Industry.

Nature: A unified, end-to-end digital platform for government procurement of goods and services.

Objective: To make public procurement transparent, efficient, competitive and accessible to a wider range of suppliers.

Coverage: Central and State government departments, public sector enterprises, autonomous bodies and other eligible public organisations.

Key Achievements

Scale: Cumulative Gross Merchandise Value (GMV) exceeded ₹20 lakh crore through more than 3.78 crore orders.

Wider participation: The platform connected approximately 1.37 lakh primary buyer organisations and 25 lakh sellers.

MSME inclusion: Micro and Small Enterprises (MSEs) accounted for 45.6% of cumulative GMV.

Women entrepreneurs: More than 2.24 lakh women-led MSEs fulfilled orders worth over ₹99,147 crore.

Start-ups: Over 42,000 start-ups secured government orders through the platform.

Significance of GeM

Transparency and accountability: Digital records and online bidding reduce discretionary decision-making and create an auditable procurement trail.

Economy in public expenditure: Competitive bidding and price comparisons can reduce procurement costs and improve value for taxpayers' money.

Ease of Doing Business: A common digital marketplace reduces entry barriers and enables smaller enterprises to access government buyers.

Digital governance: GeM supports Digital India, Make in India and Aatmanirbhar Bharat by integrating technology into government purchasing.

Technology-driven oversight: Artificial Intelligence (AI) and Machine Learning (ML) tools help flag unusual pricing, suspected collusion and irregular bidding patterns.

Challenges

Digital literacy gaps, product-quality concerns, delayed payments, cybersecurity risks and potential cartelisation remain important challenges. Smaller suppliers may also face difficulties in catalogue preparation, bidding and compliance.

Way Forward

GeM should strengthen seller support through Suvidha Kendras, improve grievance redressal, promote timely payments and enhance AI-based fraud detection. Wider participation by State governments, cooperatives and local bodies can deepen its reach.

SURGE IN FOREIGN-CURRENCY INFLOWS UNDER RBI'S FOREX SWAP FACILITY

Why in News?

In September 2026, the RBI's special foreign-exchange swap facility attracted over US$136 billion in foreign-currency inflows by 31 August 2026, exceeding initial expectations. The scheme was introduced in June 2026 to mobilise foreign currency and strengthen India's external-sector resilience amid pressure on the rupee.

About the Forex Swap Facility

The Reserve Bank of India introduced a special US dollar–Indian rupee (USD-INR) swap facility on 8 June 2026. It covered three channels:

FCNR(B) deposits: Foreign Currency Non-Resident (Bank) deposits held by

eligible non-residents in permitted foreign currencies.

OFCBs: Overseas Foreign Currency Borrowings by banks.

ECBs: External Commercial Borrowings raised by eligible Indian entities from non-resident lenders.

Under the arrangement, eligible banks could exchange foreign currency with the RBI for US dollars through a swap mechanism, reducing currency-hedging costs and encouraging fresh inflows. The FCNR(B) window closed on 31 August 2026, while the ECB and OFCB facilities remain available until 31 December 2026.

Key Highlights

Total inflows: Approximately US$136.4 billion by 31 August 2026.

Largest contributor: FCNR(B) deposits accounted for about US$127.2 billion.

Other channels: OFCBs contributed around US$5.3 billion and ECBs around US$3.9 billion.

Significance for the Indian Economy

Forex reserves: Strengthens India's external buffers and capacity to manage external payment pressures.

Rupee stability: Greater foreign-currency availability can ease exchange-market pressures, although it does not guarantee rupee appreciation.

Banking liquidity: Swapping foreign currency for rupees increases domestic banking-system liquidity, supporting credit availability.

External-sector resilience: Provides additional resources to manage oil-import bills, capital-flow volatility and global financial shocks.

NRI participation: Encourages overseas Indians to place savings in Indian banking channels.

Challenges and Concerns

Liquidity management: Large rupee inflows can create excess liquidity, complicating the RBI's monetary policy operations.

Cost of hedging: Swap arrangements involve costs and exchange-rate risks that require careful management.

Temporary nature: FCNR(B) deposits are liabilities of banks that must eventually be repaid; inflows are not equivalent to permanent foreign investment.

Way Forward

The RBI must balance foreign-exchange mobilisation with domestic liquidity management, monitor banks' foreign-currency liabilities and maintain adequate safeguards against exchange-rate risks.

DISTRICT MINERAL FOUNDATIONS (DMFS) AND PMKKKY

Why in News?

The Ministry of Mines highlighted the progress of the Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY), launched in 2015. As of July 2026, over 4.70 lakh projects worth approximately ₹1.10 lakh crore had been sanctioned to improve the welfare of mining-affected communities.

About DMF and PMKKKY

District Mineral Foundation (DMF): A non-profit trust established by State Governments in mining-affected districts under Section 9B of the Mines and Minerals (Development and Regulation) Act, 1957, inserted through the 2015 amendment.

PMKKKY: A welfare scheme launched on 17 September 2015 to use DMF funds for the development of mining-affected areas and communities.

Funding: Mining leaseholders contribute 10% of royalty for leases granted on or after 12 January 2015 and 30% for leases granted before that date.

Key Provisions

High-priority sectors: At least 70% of funds must be allocated to sectors such as healthcare, education, drinking water, sanitation, environmental protection and livelihood generation.

Other priority sectors: Up to 30% may support infrastructure, irrigation, energy and watershed development.

Revised guidelines: The January 2024 guidelines strengthened planning, monitoring, auditing and community participation.

Significance

Inclusive development: Ensures mining-affected communities share in the benefits of mineral extraction.

Environmental justice: Addresses pollution, land degradation and health impacts associated with mining.

Tribal welfare: Emphasises safeguards for Scheduled Areas and vulnerable communities under PESA, 1996, and the Forest Rights Act, 2006.

Local development: Supports essential services and sustainable livelihoods in mineral-rich districts.

Challenges and Way Forward

Under-utilisation of funds, weak project monitoring and spending on activities unrelated to mining-affected communities remain concerns. Stronger social audits, transparent public disclosure, Gram Sabha participation and outcome-based evaluation are essential.

WESTERN DEDICATED FREIGHT CORRIDOR (WDFC)

Why in News?

The Prime Minister inaugurated the final three sections of the Western Dedicated Freight Corridor (WDFC), completing the 1,506-km corridor connecting Dadri in Uttar Pradesh with Jawaharlal Nehru Port Authority (JNPA) in Maharashtra. With this, India's 2,843-km Eastern and Western Dedicated Freight Corridor network became fully operational.

Key Features

Implementing agency: Dedicated Freight Corridor Corporation of India Limited (DFCCIL), under the Ministry of Railways.

Route: Dadri (Uttar Pradesh) to JNPA (Maharashtra), passing through Haryana, Rajasthan and Gujarat.

Technology: Electrified, high-capacity freight railway designed to support double-stack container trains.

Eastern DFC: Ludhiana to Sonnagar, covering approximately 1,337 km.

Significance

Logistics efficiency: Reduces freight transit time and transportation costs, improving supply-chain reliability.

Port connectivity: Provides direct dedicated rail connectivity to JNPA, facilitating

faster movement of export-import cargo.

Decongestion: Separates freight traffic from passenger services on conventional railway routes, freeing capacity for passenger trains.

Industrial development: Connects manufacturing clusters, logistics hubs and ports, supporting industrial growth and employment.

Environmental benefits: Greater use of electrified rail freight can reduce fuel consumption and emissions compared with road transport.

International cooperation: Japan International Cooperation Agency (JICA) provided substantial financial and technical assistance for the WDFC.

Challenges and Way Forward

High construction costs, last-mile connectivity gaps and the need for efficient freight terminals remain important considerations. Integration with multimodal logistics parks, industrial corridors and port infrastructure can maximise its benefits.

CONSUMER PROTECTION (E-COMMERCE) AMENDMENT RULES, 2026

Why in News?

The Ministry of Consumer Affairs, Food and Public Distribution notified the Consumer Protection (E-Commerce) (Amendment) Rules, 2026, on 9 September 2026. The amendments strengthen transparency, grievance redressal and safeguards against misleading digital practices, and will come into force on 1 January 2027.

Key Provisions

Grievance redressal: E-commerce entities must acknowledge consumer complaints within 48 hours and resolve them within one month. They must also integrate with the National Consumer Helpline.

Search transparency: Platforms cannot manipulate search results to mislead users and must clearly identify sponsored listings.

Price transparency: When announcing discounts, platforms must display the reduced price alongside the lowest price during the preceding 30 days.

Dark patterns: Platforms must comply with the 2023 guidelines on dark patterns and conduct annual self-audits, displaying a certificate of compliance.

Seller disclosures: Seller details, country of origin, return and refund policies,

delivery costs and other relevant product information must be disclosed.

Invoice transparency: The seller's name must appear on invoices in the same font size as the e-commerce entity's name.

Significance

Consumer empowerment: Enables informed purchasing decisions and reduces information asymmetry.

Fair competition: Improves transparency in product rankings and paid promotions.

Accountability: Strengthens responsibility for grievance redressal and misleading practices.

Digital trust: Helps build confidence in India's expanding e-commerce ecosystem.

Challenges

Compliance costs, monitoring algorithmic practices, verifying seller disclosures and ensuring effective enforcement across numerous platforms remain key challenges.

Way Forward

Strengthen regulatory monitoring, consumer awareness, independent audits and coordination between the Central Consumer Protection Authority (CCPA), consumer commissions and e-commerce platforms.

DIGITAL INDIA LAND RECORDS MODERNISATION PROGRAMME (DILRMP) 3.0

Why in News?

The Ministry of Rural Development launched the operational guidelines for DILRMP 3.0 (2026–2031), with a financial outlay of ₹565.50 crore. The new phase aims to move beyond digitisation towards an integrated, GIS-enabled digital land governance ecosystem.

About DILRMP 3.0

Nodal department: Department of Land Resources, Ministry of Rural Development.

Nature: Central Sector Scheme with 100% central funding.

Objective: Integrate land records, cadastral maps, property registration and revenue court information through a digital framework called the Land Stack.

Key Features

Bhu-Aadhaar (ULPIN): A unique 14-digit identification number for every land parcel.

GIS-based Land Stack: Integrates textual ownership records, georeferenced maps, registration databases and relevant court cases through interoperable systems.

Paperless registration: Introduces end-to-end online property registration and a digital repository of registered deeds.

Registration Seva Kendras: Modernisation of 75 Sub-Registrar Offices to improve citizen services.

Digital revenue courts: Integrates revenue court case-management systems with land records.

NAKSHA: Supports GIS-based mapping and modernisation of urban land records.

Significance

Land dispute reduction: Better integration can minimise discrepancies between maps, ownership records and registrations.

Agricultural credit: Reliable land records can facilitate verification for institutional loans.

Ease of Doing Business: Simplifies property transactions and due diligence.

Transparency: Reduces opportunities for fraudulent transactions and improves public access to records.

Digital governance: Builds digital public infrastructure for land administration.

Challenges and Way Forward

Outdated records, inaccurate surveys, privacy concerns and differences in State land laws remain challenges. Regular updating, robust cybersecurity, grievance redressal and protection of customary and community land rights are essential.

DISTRICT-LEVEL ESTIMATES FOR THE UNINCORPORATED NON-AGRICULTURAL SECTOR

Why in News?

On 10 September 2026, the National Statistical Office (NSO), under the Ministry of Statistics and Programme Implementation (MoSPI), released India's first-ever district-level estimates for the unincorporated non-agricultural sector, based on the Annual Survey of Unincorporated Sector Enterprises (ASUSE) 2025. The estimates cover 757 districts and provide granular data on establishments, employment, women's participation and productivity.

What Does the Report Cover?

The unincorporated non-agricultural sector comprises enterprises in manufacturing, trade and other services that operate outside the incorporated corporate sector. The report provides district-level estimates of establishments, workers, wages, ownership patterns, registration status and Gross Value Added (GVA).

Key Findings

Economic concentration: The top 50 districts account for nearly one-third of establishments, workers and GVA in the sector.

Women's participation: Women constitute at least one-third of the workforce in 237 districts.

Productivity: In 280 districts, GVA per worker exceeds the all-India average of ₹1,56,539.

Geographical coverage: Estimates cover 757 of the 770 districts in the survey's sampling frame.

Significance

Evidence-based policymaking: Enables district-specific interventions for informal enterprises.

Employment generation: Identifies local employment patterns and opportunities for livelihood development.

Women's economic empowerment: Highlights districts with significant female participation and entrepreneurship.

Regional development: Reveals geographical disparities in enterprise

concentration and labour productivity.

MSME support: Helps policymakers design targeted credit, skill-development and formalisation initiatives.

Challenges and Way Forward

Informal enterprises often face limited access to institutional credit, social security and formal markets. District-level estimates can help address these gaps through targeted policies. However, the figures are sample-based estimates and should be interpreted alongside their statistical reliability.

Annual Survey of Industries (ASI) 2024–25

Why in News?

On September 2026, the Ministry of Statistics and Programme Implementation (MoSPI) released the results of the Annual Survey of Industries (ASI) 2024–25, covering April 2024 to March 2025. The survey reported 9.59% growth in Gross Value Added (GVA) and 7.19% growth in employment in the registered manufacturing sector.

Key Highlights

Establishments: Increased by 2.64% to approximately 2.67 lakh.

Employment: Crossed 2 crore, reaching approximately 2.10 crore persons.

Industrial output: Increased by 7.81%.

Capital investment: Fixed capital grew by 10.54%.

Leading industries: Basic metals, motor vehicles, chemicals, pharmaceuticals and food products contributed over 45% of manufacturing GVA.

About ASI

Conducting agency: National Statistical Office (NSO), under MoSPI.

Origin: Conducted annually since 1960.

Legal basis: Collection of Statistics Act, 2008, as amended in 2017.

Coverage: Primarily the registered manufacturing sector, along with specified electricity undertakings and other eligible industrial establishments.

Significance

Economic policymaking: Supports industrial policy, investment planning and manufacturing-sector assessment.

GDP estimation: Provides inputs for compiling National Accounts Statistics.

Employment analysis: Tracks industrial employment, wages and labour costs.

Regional development: Identifies State-wise disparities in manufacturing output, employment and value addition.

Industrial competitiveness: Helps assess capital formation, profitability and structural changes in industry.

Challenges and Way Forward

The survey has a time lag and does not comprehensively capture unregistered manufacturing enterprises. More timely data, improved digital reporting and complementary surveys of informal units can provide a fuller picture of industrial performance.

DECODING INDIA'S GDP BASE REVISION: IMPROVED MEASUREMENT OF THE UNINCORPORATED SERVICES SECTOR

Why in News?

India's new GDP series, released by the Ministry of Statistics and Programme Implementation (MoSPI) in February 2026, shifted the base year from 2011–12 to 2022–23. The revision drew attention to improved measurement of the unincorporated sector, which contributed to downward revisions in nominal GDP estimates for overlapping years.

What Is the Unincorporated Services Sector?

It comprises service enterprises that are not incorporated as companies, including small shops, repair services, transport operators, beauty parlours, small restaurants and self-employed service providers. It is an important source of employment and entrepreneurship in India.

What Has Changed in GDP Estimation?

Earlier approach: Estimates for the unincorporated sector relied substantially on benchmark survey data and proxy indicators to project growth between surveys.

Revised approach: The new GDP series uses annual data from the Annual Survey of Unincorporated Sector Enterprises (ASUSE) and the Periodic Labour Force Survey (PLFS) to estimate enterprise activity and employment more directly.

Additional data: GST returns, administrative databases and updated price indices improve coverage and estimation.

Outcome: The revised methodology produced lower nominal GDP estimates for overlapping years. This reflects changes in measurement and estimation, not necessarily a contraction in actual economic activity.

Significance

Statistical accuracy: Better captures the contribution of small, informal enterprises to national income.

Evidence-based policymaking: Improves assessment of employment, productivity and sectoral growth.

Inclusive development: Provides greater visibility to small entrepreneurs and self-employed workers.

Economic planning: Helps improve the reliability of GDP, GVA and related macroeconomic indicators.

Challenges and Way Forward

Informal enterprises may have incomplete accounts, irregular reporting and limited digital records. Regular surveys, stronger administrative-data integration and transparent methodological documentation are essential for improving estimates.

MERCHANT DISCOUNT RATE (MDR) ON UPI TRANSACTIONS

Why in News?

In September 2026, the National Payments Corporation of India (NPCI) announced a revised Merchant Discount Rate (MDR) framework, effective 15 October 2026, introducing charges on specified high-value UPI merchant transactions to support the long-term sustainability of the digital payments ecosystem.

What is MDR?

MDR is a fee charged to merchants for processing digital payments, shared among participants in the payment ecosystem.

Key Provisions

Standard rate: 0.4% on specified person-to-merchant (P2M) UPI transactions above ₹2,000, subject to applicable caps.

Exemptions: Person-to-person (P2P) transfers and eligible small merchants remain free of MDR.

Consumer protection: Customers are not to be charged MDR directly.

Special categories: Certain essential-sector and capital-market transactions have separate rates.

Significance

Financial sustainability: Provides revenue to banks and payment service providers for maintaining UPI infrastructure.

Cybersecurity: Supports investment in fraud prevention, system resilience and customer support.

Digital inclusion: A dedicated fund can help expand digital-payment acceptance among small merchants.

Policy trade-off: Balances affordable digital payments with the financial viability of payment providers.

Concerns and Way Forward

MDR may increase operating costs for some merchants and could indirectly affect prices. Transparent charges, effective monitoring and continued protection for small vendors are essential.

NATIONAL INVESTMENT AND INFRASTRUCTURE FUND (NIIF)

Why in News?

NIIF Infrastructure Fund II achieved its first close at ₹19,000 crore, exceeding 60% of its ₹30,000-crore target corpus. This followed the Union Cabinet's approval in June 2026 of an additional ₹30,000-crore government investment commitment, taking the Government of India's total commitment to NIIF to ₹60,000 crore.

About NIIF

Established: 2015; managed by National Investment and Infrastructure Fund Limited.

Government stake: 49%.

Nature: Sovereign-anchored investment platform that mobilises domestic and international institutional capital.

Key Investment Areas

Infrastructure: Roads, ports, logistics, airports and energy.

Digital infrastructure: Data centres and related infrastructure.

Emerging sectors: Electric mobility, urban infrastructure and renewable energy.

Other investments: Healthcare, manufacturing, technology and affordable housing.

Significance

Infrastructure financing: Mobilises long-term capital for commercially viable projects.

Crowding-in effect: Uses government capital to attract private and foreign institutional investment.

Employment generation: Supports infrastructure development and associated economic activity.

Economic growth: Complements initiatives such as PM Gati Shakti and Digital India.

Climate transition: Supports investment in renewable energy and sustainable infrastructure.

Challenges and Way Forward

Long project gestation periods, regulatory uncertainty and investment risks can affect returns. Transparent governance, sound project appraisal and diversified investments are essential.

Copper Price Rise

Why in News?

In September 2026, copper prices on the London Metal Exchange (LME) surged to record highs, reaching around US$14,700 per tonne. The rise was driven by expectations of US import tariffs, supply constraints and growing demand from data centres, renewable energy and electricity grids.

Causes of the Price Rise

Supply constraints: Mine disruptions and declining output in major producing countries tightened available supplies.

US tariff uncertainty: Anticipated tariffs encouraged traders to stockpile copper in the United States, reducing availability elsewhere.

Rising demand: Electric vehicles (EVs), artificial intelligence (AI) infrastructure and renewable energy require substantial copper.

Significance

Economic indicator: Copper is often called Dr. Copper because its price reflects trends in industrial activity and economic demand.

Energy transition: Essential for power transmission, solar panels, wind turbines and EVs.

Inflationary pressure: Higher prices raise costs for electrical equipment, construction, electronics and manufacturing.

India's vulnerability: Import dependence exposes domestic industries to global price fluctuations and exchange-rate movements.

Challenges and Way Forward

India needs to strengthen domestic copper production, promote recycling and recover copper from electronic waste. Diversifying import sources and improving resource efficiency can reduce supply risks.

INDIA'S SOVEREIGN CREDIT RATING UPGRADED

Why in News?

On 2 September 2026, the Japan Credit Rating Agency (JCR) upgraded India's long-term foreign-currency and local-currency sovereign credit ratings from **'BBB+' to 'A–'**, maintaining a stable outlook. The upgrade recognises India's sustained economic growth, improved fiscal management, stronger financial system and resilient external position.

Key Factors Behind the Upgrade

Strong economic growth: Robust private consumption and public investment have supported India's growth momentum.

Fiscal consolidation: The Central Government's fiscal deficit declined from 4.7% of GDP in FY 2024–25 to 4.4% in FY 2025–26, while capital expenditure remained high.

Financial-sector stability: Improved banking-sector asset quality, stronger capital

adequacy and better financial health of non-banking financial companies have strengthened resilience.

Structural reforms: Initiatives such as the Goods and Services Tax (GST), Digital Public Infrastructure (DPI) and the Insolvency and Bankruptcy Code (IBC) have strengthened economic foundations.

External resilience: Adequate foreign exchange reserves and a contained current account deficit reduce vulnerability to external shocks

Significance for India

Investor confidence: A higher rating can improve perceptions of India's creditworthiness and encourage long-term investment.

Borrowing costs: It may lower risk premiums on government and corporate borrowing, depending on market conditions.

Global standing: The upgrade reflects greater international recognition of India's economic fundamentals.

Private investment: Increased confidence may encourage private investment, employment generation and infrastructure development.

Challenges

High general government debt, interest-payment obligations and persistent fiscal pressures remain concerns. The benefits of public investment must increasingly translate into private investment and productive employment.

Way Forward

India should sustain fiscal consolidation, improve tax revenue mobilisation, strengthen Centre–State fiscal coordination and maintain financial-sector stability. Enhancing productivity, expanding exports and encouraging private investment will be essential to sustaining growth and securing further sovereign rating improvements.

ANTI-DUMPING DUTIES ON ALUMINIUM PRODUCTS

Why in News?

In September 2026, the Directorate General of Trade Remedies (DGTR), under the Ministry of Commerce and Industry, recommended extending anti-dumping duties

for five years on certain flat-rolled aluminium products from China and aluminium foil of 80 microns and below from China, Indonesia, Malaysia and Thailand. The recommendations seek to protect domestic manufacturers from unfairly priced imports.

Key Features

Anti-dumping duty: A trade-remedy measure imposed on imports sold below their normal value when they cause or threaten material injury to domestic industry.

Legal framework: Section 9A of the Customs Tariff Act, 1975, and the Anti-Dumping Rules, 1995.

Institutional mechanism: DGTR investigates dumping and injury and recommends duties; the Central Government takes the final decision.

Sunset review: Existing duties are reviewed before expiry to determine whether ending them could lead to renewed dumping and injury.

Significance

Domestic industry: Helps protect Indian aluminium producers from unfair price competition and supports investment and employment.

Strategic importance: Aluminium is essential for transport, construction, electrical equipment, renewable energy and packaging.

Trade resilience: Measures can reduce the risk of low-priced imports being diverted to India amid excess global production capacity.

Balanced protection: Product-specific exclusions can help ensure that downstream industries retain access to specialised aluminium products.

Concerns

Duties may increase input costs for packaging, manufacturing and other downstream industries. Excessive protection could also weaken incentives to improve competitiveness.

Way Forward

India should combine evidence-based trade remedies with productivity improvements, technological modernisation and recycling. Periodic reviews should balance domestic producers' interests with affordable inputs for downstream industries and consumers.

INDIA'S FIRST LNG-POWERED TRAIN

Why in News?

On September 2026, Indian Railways launched India's first liquefied natural gas (LNG)-diesel dual-fuel train from Sabarmati Railway Station, Ahmedabad, Gujarat. Developed through the conversion of an existing Diesel Electric Multiple Unit (DEMU), the initiative aims to reduce diesel consumption, operating costs and emissions.

Key Features

Dual-fuel technology: The train can operate using both LNG and diesel, providing flexibility in fuel use.

Fuel substitution: LNG is expected to replace approximately 40% of conventional diesel consumption.

Indigenous capability: The conversion was undertaken by the Integral Coach Factory (ICF), Chennai.

Operational flexibility: The train can continue running on diesel when LNG is unavailable.

Significance

Environmental benefits: LNG use can reduce certain air pollutants and carbon dioxide emissions compared with diesel-only operation, although methane leakage can offset some climate benefits.

Economic efficiency: Lower fuel costs may reduce railway operating expenditure.

Energy diversification: The initiative expands the use of alternative fuels in railway transport.

Asset utilisation: Retrofitting existing DEMU trains can extend their useful service life and reduce the need for immediate replacement.

Net-zero ambition: It complements Indian Railways' broader efforts to improve energy efficiency and reduce its carbon footprint.

Challenges

LNG storage, specialised refuelling infrastructure, safety requirements and methane leakage need careful management. Since most of India's broad-gauge railway network is electrified, LNG is best viewed as a complementary solution for suitable diesel-powered services.

Way Forward

Indian Railways should assess fuel savings, lifecycle emissions and safety through pilot projects before scaling up. Expanding renewable-powered electrification, improving energy efficiency and developing cleaner fuel infrastructure can support sustainable rail transport.

GLOBAL GENDER GAP INDEX 2026

Why in News?

The World Economic Forum (WEF) released the Global Gender Gap Report 2026 on 16 September 2026. India retained its 131st position among 145 economies, with 64.5% of its gender gap closed, below the global average of 69.2%.

Key Findings for India

The index evaluates gender parity across four dimensions:

Economic Participation and Opportunity: 41.2% parity, reflecting persistent gaps in workforce participation, income and leadership.

Educational Attainment: 96.6% parity, with full parity in secondary and tertiary enrolment.

Health and Survival: 95.6% parity, with concerns relating to the sex ratio at birth.

Political Empowerment: 24.5% parity; women remain underrepresented in Parliament and ministerial positions.

Global Highlights

Iceland ranked first, followed by Finland and Norway.

Globally, 69.2% of the gender gap has been closed.

At the current pace, achieving full global gender parity is estimated to take 120 years.

Significance

The index highlights inequalities in employment, education, health and political representation. It helps governments identify policy gaps and assess progress towards Sustainable Development Goal 5: Gender Equality.

Way Forward

India should expand women's access to formal employment, strengthen childcare and workplace safety, promote equal pay and leadership opportunities, improve women's political representation, and address gender-based health inequalities. Better implementation of existing laws and gender-responsive budgeting are essential for translating educational gains into economic and political empowerment.

AGENTIC COMMERCE

Why in News?

Agentic commerce gained attention in September 2026 as Indian fintech and e-commerce companies explored AI-driven shopping and payments at the Global Fintech Fest 2026. The National Payments Corporation of India (NPCI) is examining protocols to identify and authorise AI agents operating within the Unified Payments Interface (UPI) ecosystem.

What Is Agentic Commerce?

Agentic commerce is a digital commerce model in which AI agents can discover products, compare prices, recommend options and execute purchases on behalf of users, within user-defined permissions.

Significance

Consumer convenience: Automates product discovery, comparison and checkout.

Personalisation: Uses preferences and purchasing patterns to provide tailored recommendations.

Business efficiency: Helps merchants automate customer support, inventory-related tasks and payment operations.

MSME empowerment: AI tools can help small businesses improve customer reach and streamline routine operations.

Digital payments: Integration with UPI could enable secure, pre-authorised payments with fewer manual steps.

Challenges

Risks include unauthorised transactions, data privacy breaches, algorithmic bias, fraudulent AI agents and uncertainty over liability when an agent makes an error. Secure identity verification and interoperability are essential for adoption.

Way Forward

India should establish clear standards for AI-agent identification, user consent, transaction limits, audit trails and grievance redressal. Strong cybersecurity, data protection and liability frameworks must accompany innovation. Human oversight should remain available for high-value or sensitive transactions.

TELECOM MANUFACTURING ZONE (TMZ) IN GWALIOR

Why in News?

In September 2026, the Union Minister for Communications inspected the proposed site of India's first integrated Telecom Manufacturing Zone (TMZ) in Gwalior, Madhya Pradesh. The project has attracted proposed investments of approximately ₹5,500 crore from 24 companies and is expected to generate over 18,000 direct and indirect employment opportunities.

Key Features

Location: Gwalior, Madhya Pradesh, at Shrimant Madhavrao Scindia Counter Magnet City (SADA) and the Gwalior IT Park.

Infrastructure: An integrated, plug-and-play industrial cluster for telecom manufacturing, research and development (R&D), testing and innovation.

Central support: ₹493 crore in central funding for Phase I infrastructure.

Technology focus: Telecom equipment, optical fibre, mobile devices, semiconductor-related technologies and next-generation 5G/6G solutions.

Significance

Atmanirbhar Bharat: Reduces dependence on imported telecom equipment and components.

Strategic security: Strengthens domestic telecom supply chains and supports secure communications infrastructure.

Employment generation: Creates skilled manufacturing, engineering and research opportunities.

Export potential: Can help India transition from a telecom services-led market to a globally competitive telecom product manufacturer.

Regional development: Encourages industrialisation, investment and skill development in central India.

Way Forward

The government should strengthen industry–academia collaboration, support domestic research and intellectual property creation, ensure reliable infrastructure, and integrate MSMEs into supply chains. Quality standards, competitive costs and sustained investment in advanced technologies will be essential for global competitiveness.

SCHEME TO PROMOTE MANUFACTURING OF SINTERED RARE EARTH PERMANENT MAGNETS

Why in News?

In August 2026, the Ministry of Heavy Industries received 20 bids under the scheme to establish integrated manufacturing facilities for sintered Rare Earth Permanent Magnets (REPMs). Approved in November 2025, the ₹7,280-crore scheme aims to create domestic manufacturing capacity of 6,000 metric tonnes per annum.

Key Features

Nodal Ministry: Ministry of Heavy Industries.

Financial outlay: ₹7,280 crore, including ₹6,450 crore in sales-linked incentives and ₹750 crore in capital subsidy.

Capacity target: 6,000 MTPA, allocated among five beneficiaries through global competitive bidding.

Integrated value chain: Supports conversion of rare-earth oxides into metals, alloys and finished magnets.

Significance

Strategic self-reliance: Reduces dependence on imported magnets and vulnerable global supply chains.

Clean energy transition: REPMs are crucial for electric vehicles, wind turbines and energy-efficient motors.

National security: Supports domestic capabilities in defence, aerospace and advanced electronics.

Employment and innovation: Encourages high-technology manufacturing, research and skilled jobs.

Net-zero commitment: Supports India's long-term goal of achieving net-zero emissions by 2070.

Challenges

India faces gaps in rare-earth processing, advanced manufacturing technology and access to reliable raw materials. Environmental concerns associated with mining and processing also require attention.

Way Forward

India should strengthen domestic rare-earth exploration and processing, promote recycling of magnets from electronic waste, invest in research and development, and build skilled manpower. Collaboration with industry and research institutions will be vital for creating a competitive, resilient domestic supply chain.

PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY)

Why in News?

The Pradhan Mantri Matsya Sampada Yojana (PMMSY) completed six years on September 2026. The government highlighted its contribution to fisheries development, reporting record fish production of 197.75 lakh tonnes in 2024–25 and allocating ₹2,500 crore under the scheme in the Union Budget 2026–27.

Key Features

Launch: September 2020, as part of the Atmanirbhar Bharat initiative.

Nodal Ministry: Ministry of Fisheries, Animal Husbandry and Dairying; implemented by the Department of Fisheries.

Outlay: ₹20,750 crore.

Nature: Umbrella scheme comprising Central Sector and Centrally Sponsored Scheme components.

Objectives: Increase fish production, improve productivity, modernise infrastructure, reduce post-harvest losses, enhance exports and improve fishers' incomes.

Major Achievements

Fish production increased from 141.64 lakh tonnes in 2019–20 to 197.75 lakh tonnes in 2024–25.

Fisheries exports rose from ₹46,663 crore in 2019–20 to ₹73,890 crore in 2025–26.

The scheme supported employment opportunities for approximately 58 lakh people in fisheries and aquaculture-related activities.

It promotes modern technologies such as Biofloc and Recirculatory Aquaculture Systems (RAS), alongside cold chains, fish landing centres and Fish Farmers Producer Organisations (FFPOs).

Significance

Blue Economy: Strengthens the contribution of fisheries to economic growth and coastal development.

Food and nutritional security: Improves access to affordable, protein-rich food.

Livelihoods: Supports fishers, aquaculture farmers, women and small-scale enterprises.

Exports: Enhances value addition, quality assurance and international market access.

Sustainability: Encourages technology-driven aquaculture and improved fisheries management.

Challenges

Overfishing, climate change, disease outbreaks, inadequate cold-chain infrastructure and price fluctuations continue to affect the sector. Small-scale fishers also face constraints in accessing credit, technology and markets.

Way Forward

India should strengthen sustainable fishing practices, expand cold-chain and processing facilities, improve access to institutional credit and insurance, and promote climate-resilient aquaculture. Better traceability, skill development and market linkages can improve fishers' incomes while protecting aquatic ecosystems.

PRADHAN MANTRI KISAN MAANDHAN YOJANA (PM-KMY)

Why in News?

The Pradhan Mantri Kisan Maandhan Yojana (PM-KMY) completed seven years on 12 September 2026. According to the Ministry of Agriculture and Farmers Welfare, over 24.96 lakh farmers had enrolled under the scheme by February 2026, strengthening the focus on old-age social security for small and marginal farmers.

Key Features

Launch: 12 September 2019.

Nodal Ministry: Ministry of Agriculture and Farmers Welfare.

Nature: Voluntary and contributory Central Sector pension scheme.

Eligibility: Small and marginal farmers aged 18–40 years with cultivable landholdings of up to two hectares, subject to exclusion criteria.

Pension benefit: Assured minimum pension of ₹3,000 per month after attaining 60 years of age.

Contribution: Farmers contribute ₹55–₹200 per month depending on their age at entry; the Central Government makes an equal matching contribution.

Family pension: After the pensioner's death, the eligible spouse receives 50% of the pension, i.e. ₹1,500 per month.

Implementation: In partnership with the Life Insurance Corporation of India (LIC), with enrolment facilitated through Common Service Centres (CSCs).

Significance

Old-age security: Provides a predictable income stream after farmers' productive years.

Inclusive development: Supports farmers with limited savings and access to formal retirement benefits.

Risk reduction: Helps reduce vulnerability arising from uncertain agricultural income and the absence of regular pensions.

Social protection: Complements broader efforts to improve rural livelihoods and financial inclusion.

Challenges

Low awareness, irregular contributions, small landholdings and uncertain farm incomes can constrain enrolment and continuity. The scheme's coverage remains limited relative to India's farming population.

Way Forward

Strengthen awareness through Panchayats, farmer-producer organisations and CSCs; simplify enrolment; improve coordination with existing farmer databases; and enable flexible contributions suited to seasonal incomes. Periodic reviews of coverage and implementation can improve access and long-term participation.

SOIL CARBON PAYMENT INITIATIVE

Why in News?

In September 2026, India initiated its first farm-level soil-carbon payments, with over ₹2.9 crore being disbursed to 2,550 farmers in Punjab and Haryana. The payments reward verified carbon gains and greenhouse-gas emission reductions achieved through regenerative farming practices under the Aadi farmer carbon programme.

Key Features

Implementing organisation: Grow Indigo, with technical guidance from the Indian Council of Agricultural Research (ICAR).

Practices promoted: Direct Seeded Rice (DSR), reduced tillage and crop-residue management.

Carbon credits: Issued after measurement and independent verification of environmental outcomes under the Verra VM0042 methodology.

Farmer benefits: Payments provide an additional income source linked to sustainable agricultural practices.

Significance

Climate mitigation: Promotes the storage of carbon in soil and reduction of greenhouse-gas emissions.

Soil health: Supports improved soil structure, fertility and long-term agricultural productivity.

Water conservation: DSR can reduce irrigation requirements compared with conventional rice transplantation.

Air quality: Better crop-residue management can reduce stubble burning and associated pollution.

Farmer income: Connects smallholders with carbon markets, creating potential financial incentives for sustainable farming.

Challenges

Carbon measurement and verification can be costly and technically complex. Farmers also need transparent payment systems and protection against uncertain carbon-credit prices.

Way Forward

India should strengthen scientific monitoring, ensure transparent benefit-sharing, build farmer awareness and expand access to carbon markets. Public institutions, agricultural universities and farmer-producer organisations can support adoption while safeguarding smallholders' interests.

LIVESTOCK INSURANCE PORTAL

Why in News?

The Department of Animal Husbandry and Dairying launched the Livestock Insurance Portal on 28 September 2026 under the Livestock Insurance activity of the National Livestock Mission (NLM). The digital platform aims to simplify insurance enrolment, improve claim settlement and strengthen transparency in livestock insurance.

Significance

Risk protection: Helps livestock farmers manage financial losses caused by animal deaths, diseases and accidents.

Digital governance: Integrates policy issuance, premium management, beneficiary verification and claims processing.

Accessibility: Available in Hindi, English and 11 regional languages.

Livelihood security: Supports rural incomes and strengthens the livestock sector's contribution to the rural economy.

Way Forward

Improve farmer awareness, ensure timely claim settlement, strengthen grievance redressal and expand insurance coverage, particularly among small livestock owners and in underserved regions.

CAZRI MOTH BEAN VARIETIES

Why in News?

In September 2026, the ICAR–Central Arid Zone Research Institute (CAZRI), Jodhpur, reported that four improved moth bean varieties—CAZRI Moth-4, Moth-5, Moth-6 and Moth-7—maintained growth and pod development during a prolonged 35-day dry spell in Rajasthan during Kharif 2026.

Significance

Climate-resilient agriculture: The varieties demonstrate improved tolerance to moisture stress and erratic rainfall.

Pulse self-reliance: Higher and more stable productivity can support domestic pulse production.

Farmer livelihoods: Moth bean offers a suitable crop option for drought-prone areas with limited irrigation.

Soil health: As a legume, moth bean can contribute to biological nitrogen fixation and crop diversification.

Scientific innovation: The varieties possess developmental plasticity, enabling growth and maturity to adjust to soil-moisture availability.

Way Forward

Scale up quality seed production and distribution, strengthen extension services, and promote moisture conservation, timely sowing and integrated weed management. Combining improved varieties with locally suitable farming practices can raise productivity while strengthening resilience to climate variability.

RED ROT DISEASE THREATENS SUGARCANE PRODUCTION

Why in News?

In September 2026, concerns over red rot disease intensified as Uttar Pradesh's sugar production fell from 126.4 lakh tonnes in 2019–20 to 89.5 lakh tonnes in 2025–26, with the disease affecting the widely cultivated Co-0238 variety. The outbreak has renewed calls for disease-resistant varieties and improved crop management.

Key Facts

Causative agent: Fungus Colletotrichum falcatum.

Symptoms: Reddening of internal stalk tissues, often with white patches, followed by drying and rotting.

Spread: Infected seed canes, crop residues and contaminated field conditions.

Impact: Reduces cane yield and sugar recovery, affecting farmers and sugar mills.

Significance

Sugarcane is important for rural livelihoods, the sugar industry and ethanol production. Disease outbreaks can disrupt sugar supplies, reduce farmers' incomes and affect the financial health of sugar mills.

Way Forward

Promote resistant varieties, certified disease-free planting material, regular field surveillance and removal of infected clumps. Avoid excessive dependence on a single variety, strengthen research into emerging fungal strains, and improve farmer awareness through agricultural extension services

PASHUDHAN BIMA PORTAL

Why in News?

The Department of Animal Husbandry and Dairying launched the Pashudhan Bima Portal on 28 September 2026 under the Livestock Insurance activity of the National Livestock Mission (NLM). The portal aims to digitise livestock insurance, simplify enrolment and improve transparency in claim settlement.

Significance

Risk protection: Helps livestock owners manage financial losses due to animal deaths, diseases and accidents.

Digital governance: Integrates policy issuance, premium management, beneficiary verification and claim processing.

Accessibility: Available in Hindi, English and 11 regional languages.

Livelihood security: Strengthens rural incomes and supports the livestock-based economy.

Way Forward

Improve farmer awareness, ensure timely claim settlement, strengthen grievance redressal and expand insurance coverage among small livestock owners and underserved regions.

RISING SULPHUR PRICES

Why in News?

In September 2026, rising global sulphur prices raised concerns over India's fertiliser industry. Indian landed sulphur prices had nearly doubled since January to around US$1,050–1,100 per tonne, increasing production costs for phosphatic fertilisers amid geopolitical tensions and supply-chain disruptions.

Significance

Fertiliser production: Sulphur is essential for manufacturing sulphuric acid, which is used to produce phosphatic fertilisers such as Di-ammonium Phosphate (DAP) and Single Super Phosphate (SSP).

Import dependence: India sources a substantial share of its sulphur imports from West Asia, making supplies vulnerable to geopolitical disruptions and shipping risks.

Fiscal burden: Higher input costs may increase the government's fertiliser subsidy expenditure.

Agricultural impact: Prolonged cost pressures could affect manufacturers' margins



HANGING GLACIERS IN THE HIMALAYAS AND GLOF RISK

Why in News?

A study published in Nature identified 219 hanging glaciers in the Alaknanda Basin of the Garhwal Himalayas, highlighting the increasing risk of glacier collapse and cascading disasters in the Himalayan region.

What are Hanging Glaciers?

Hanging glaciers are masses of ice located on steep mountain slopes or cliffs. Unlike valley glaciers, they are not necessarily confined within well-defined valleys and may remain structurally unstable.

Causes of instability: Rising temperatures, changing precipitation patterns and thawing of frozen ground can alter glacier geometry, velocity and structural stability.

Associated hazards: Sudden detachment of ice can trigger ice-rock avalanches, debris flows, river blockages, flash floods and, in certain situations, Glacial Lake Outburst Floods (GLOFs).

Vulnerable regions: The upper Alaknanda basin in Uttarakhand has a significant concentration of hanging glaciers. Himalayan settlements, roads, bridges and hydropower infrastructure are particularly vulnerable.

Disaster management: Uttarakhand has initiated real-time monitoring of Vasundhara Tal in Chamoli using sensors, satellite-based data transmission and early-warning alerts.

EL NIÑO 2026–27 AND ITS IMPACT ON THE INDIAN MONSOON

Why in News?

The India Meteorological authorities indicated that El Niño conditions, which developed in May 2026, were likely to persist until February 2027, raising concerns about their potential influence on the Indian monsoon.

El Niño

El Niño is the abnormal warming of sea surface temperatures in the central and eastern equatorial Pacific Ocean. It is the warm phase of the El Niño Southern Oscillation (ENSO).

Normal conditions: Easterly trade winds push warm surface water towards the western Pacific, while cold, nutrient-rich water upwells near the South American coast.

During El Niño: Trade winds weaken, warm water shifts eastwards and upwelling off the South American coast is suppressed.

Impact on India: El Niño can weaken the Walker circulation and alter atmospheric circulation, often reducing southwest monsoon rainfall over India. It can also increase the likelihood of droughts and heatwaves.

Global impacts: It can influence tropical cyclones, rainfall distribution, fisheries and marine ecosystems.

The Indian monsoon is not determined by El Niño alone. Other factors, including the Indian Ocean Dipole (IOD), Madden-Julian Oscillation (MJO) and regional ocean-atmosphere interactions, also influence rainfall.

KALPASAR PROJECT AND THE GULF OF KHAMBHAT

Why in News?

The Gujarat government signed agreements with Dutch institutions in September 2026 to strengthen technical cooperation and capacity building for the proposed Kalpasar Project, a freshwater reservoir in the Gulf of Khambhat.

Gulf of Khambhat

The Gulf of Khambhat, also known as the Gulf of Cambay, is a funnel-shaped inlet of the Arabian Sea located between the Saurashtra Peninsula and mainland Gujarat.

Rivers draining into the gulf: Narmada, Tapi, Mahi, Sabarmati and Dhadhar.

Tidal characteristics: Its funnel shape amplifies tidal movements, with spring tidal ranges exceeding 10 metres in some locations.

The Kalpasar Project

The project proposes constructing a dam across the gulf, approximately 30 km long, to create a freshwater reservoir by storing the runoff of the Sabarmati, Mahi and Dhadhar, supplemented by Narmada water.

Objectives:

Address water scarcity in drought-prone Saurashtra.

Reduce coastal salinity ingress.

Improve irrigation and freshwater availability.

Support regional development.

The project was conceived in the 1980s, with its earlier tidal-power component subsequently set aside in favour of water storage.

Geographical significance: The project highlights the importance of river-basin management, coastal hydrology, tidal dynamics and water-resource planning in semi-arid regions.

GEOTHERMAL ENERGY POTENTIAL OF PUGA VALLEY

Why in News?

India commissioned its first two geothermal wells in Puga Valley, Ladakh, marking an important step towards exploring geothermal energy for electricity generation.

Geothermal Energy

Geothermal energy is renewable energy derived from the heat stored beneath the Earth's surface. This heat originates primarily from the planet's formation and the radioactive decay of elements within the Earth's interior.

Nature: It is a low-carbon, weather-independent energy source capable of providing continuous power, unlike solar and wind energy.

Geological association: Geothermal resources are commonly found in regions with volcanic activity, tectonic plate boundaries, hot springs and elevated geothermal gradients.

Puga Valley is located in the Changthang region of eastern Ladakh. It is considered one of India's most promising geothermal sites because of its hot springs and underground heat reserves.

The ONGC Energy Centre commissioned two geothermal wells, each approximately 1,000 metres deep, in July 2026.

The wells will support geothermal reservoir evaluation.

They are intended to facilitate India's first 1 MW demonstration geothermal power project.

The National Policy on Geothermal Energy, notified in September 2025, provides a framework for developing India's geothermal resources. The Ministry of New and Renewable Energy is the nodal ministry.

GROUNDWATER RECHARGE AND WATERSHED MANAGEMENT

Why in News?

India is expanding community-led water conservation initiatives such as Jal Sanchay Jan Bhagidari and watershed development programmes to improve groundwater recharge, water availability and rural livelihoods.

Watershed management refers to the integrated management of land, water and vegetation within a drainage basin to conserve natural resources and improve ecological and agricultural productivity.

A watershed is an area of land drained by a common river system or water body.

Major interventions include:

Construction of check dams, percolation tanks and farm ponds.

Contour bunding and terracing to reduce surface runoff and soil erosion.

Afforestation and vegetation restoration.

Rejuvenation of springs and traditional water bodies.

Government initiatives:

WDC-PMKSY 2.0: Uses GIS and remote sensing for watershed planning and includes springshed rejuvenation.

Jal Sanchay Jan Bhagidari: Launched in September 2024, it promotes community participation in groundwater recharge, water storage and revival of defunct borewells.

Watershed interventions improve groundwater levels, increase protective irrigation, reduce soil degradation and support agricultural diversification.

DEEP-SEA MINING IN THE INDIAN OCEAN

Why in News?

India's exploration of deep-sea mineral resources has gained attention under the Deep Ocean Mission, particularly in the context of polymetallic nodules and other mineral deposits in the Indian Ocean.

Deep-Sea Mining

Deep-sea mining refers to the extraction of mineral resources from the ocean

floor, generally at depths greater than 200 metres.

Major deep-sea mineral resources include:

Polymetallic nodules: Potato-shaped mineral deposits found on abyssal plains, containing manganese, nickel, cobalt and copper.

Polymetallic sulphides: Mineral deposits formed around hydrothermal vents, rich in copper, zinc, gold and silver.

Cobalt-rich ferromanganese crusts: Deposits found on underwater mountains and seamounts.

Indian Ocean locations:

Central Indian Ocean Basin: Polymetallic nodules.

Central Indian Ridge and Southwest Indian Ridge: Polymetallic sulphide deposits.

Carlsberg Ridge: An area of mineral exploration interest.

India's Deep Ocean Mission includes the development of technologies for deep-sea exploration, resource assessment and the MATSYA-6000 submersible, designed for human exploration at depths of up to 6,000 metres.

Concerns: Mining may disturb fragile deep-sea ecosystems, generate sediment plumes, produce underwater noise and affect poorly understood marine biodiversity.

TRANSBOUNDARY HIMALAYAN RIVER BASINS AND CASCADING DISASTERS

Why in News?

Recent glacier-related disasters in the Himalayan region have highlighted the need for cooperation among countries sharing transboundary river basins, particularly for early warning, disaster preparedness and downstream risk reduction.

Transboundary river basins

A transboundary river basin is a drainage basin that extends across the political boundaries of two or more countries. The Himalayan river systems are important examples because their sources, tributaries and downstream channels are shared by multiple nations.

Major transboundary river systems:

Indus: Shared by China, India and Pakistan.

Ganga: Its basin extends across India, Nepal, Bangladesh and China.

Brahmaputra: Originates in Tibet and flows through India and Bangladesh.

Geographical challenges:

Glacial melting and unstable mountain slopes increase the risk of avalanches, GLOFs and flash floods.

Heavy rainfall and sediment movement can intensify downstream flooding.

Dams, hydropower projects and water withdrawals create competing demands among riparian countries.

Cascading disasters occur when one hazard triggers a sequence of connected events. For example, a glacier collapse may cause an avalanche, river blockage and subsequent flash flooding.

Way forward: Countries need shared hydrological data, transboundary early-warning systems, coordinated disaster response and scientific monitoring.

DEENDAYAL PORT AND THE EMERGING GREEN-SHIPPING FUEL ECONOMY

Why in News?

The foundation stone for India's first port-based e-methanol production facility was laid at Deendayal Port Authority in Kandla, Gujarat, in September 2026.

Deendayal Port

Deendayal Port, formerly known as Kandla Port, is located in the Gulf of Kachchh along the western coast of Gujarat. It is a major maritime gateway for India's international trade.

The proposed e-methanol facility is a joint initiative of Deendayal Port Authority and Assam Petro-Chemicals Limited.

Key features:

Investment of approximately ₹2,300 crore.

Proposed production capacity of 150 tonnes per day.

Uses renewable power, water and biogenic carbon dioxide to produce e-methanol.

The green fuel will be supplied to ships operating along the Asia–Europe International Trade Corridor.

What is e-methanol?

It is a synthetic fuel produced using green hydrogen and captured carbon dioxide. It can serve as an alternative marine fuel and help reduce dependence on conventional fossil fuels.

Geographical and economic significance:

Kandla's strategic location supports maritime trade with western and northern India.

Port-based fuel production can encourage the development of storage, transportation and renewable-energy infrastructure.

It can strengthen India's role in the emerging green shipping economy.

Places in News – September 2026

INTERNATIONAL PLACES

Bab-el-Mandeb Strait

Location:

Between Yemen in Asia and Djibouti and Eritrea in Africa. It connects the Red Sea with the Gulf of Aden.

Why in News?

Houthi forces advanced towards the strategic maritime corridor, capturing Mayun Island and the port city of Mocha in September 2026.

Significant Facts:

Connects the Red Sea with the Gulf of Aden.

Mayun (Perim) Island divides it into two channels.

It is a crucial shipping route connecting the Indian Ocean with the Mediterranean Sea through the Suez Canal.

Strait of Hormuz and Sohar Port

Location:

The Strait of Hormuz lies between Iran and Oman, connecting the Persian Gulf with the Gulf of Oman. Sohar Port is located on Oman's northern coast.

Why in News?

Regional hostilities and disruptions to maritime shipping through the Strait of Hormuz renewed attention towards alternative shipping facilities, including Sohar Port.

Significant Facts:

It is a major global oil transit chokepoint.

The Persian Gulf lies to its west and the Gulf of Oman to its east.

Sohar is an important industrial and maritime hub of Oman.

Taklamakan Desert

Location:

Located in the Xinjiang Uyghur Autonomous Region of northwestern China, within the Tarim Basin.

Why in News?

China's large-scale afforestation initiatives around the Taklamakan Desert attracted attention for their role in combating desertification and sand encroachment.

Significant Facts:

One of the world's largest sandy deserts.

Bounded by the Tian Shan Mountains in the north and Kunlun Mountains in the south.

The Tarim River flows through the surrounding basin.

It forms part of the broader Central Asian arid region.

Svalbard Archipelago

Location:

Norwegian archipelago in the Arctic Ocean, situated north of mainland Europe, between mainland Norway and the North Pole.

Why in News?

A Russian vessel docked at Barentsburg was seized in September 2026 following

a court order involving a Ukrainian company's legal claim.

Significant Facts:

Longyearbyen is its administrative centre.

The Svalbard Treaty of 1920 recognises Norwegian sovereignty while granting certain rights to other signatories.

It is strategically important for Arctic research and geopolitics.

Governor of Svalbard

Nevados de Chillán Volcano

Location:

Located in the Ñuble Region of central Chile, within the Andes Mountains of South America.

Why in News?

Volcanic activity at Nevados de Chillán attracted attention in September 2026 due to the emission of ash and volcanic material.

Significant Facts:

It is part of the Andes volcanic belt.

Chile lies along the Pacific Ring of Fire.

The Andes extend along the western margin of South America.

Volcanic hazards include ashfall, pyroclastic flows and lahars.

Kamchatka Peninsula

Location:

Situated in the Russian Far East, between the Sea of Okhotsk to the west and the Pacific Ocean and Bering Sea to the east and northeast.

Why in News?

NISAR satellite observations of the Krasheninnikov volcanic region brought attention to volcanic activity in the Kamchatka Peninsula.

Significant Facts:

It is part of the Pacific Ring of Fire.

The Kuril–Kamchatka Trench lies offshore.

The peninsula has numerous active volcanoes.

It is characterised by frequent earthquakes and volcanic activity.

Lord Howe Island

Location:

Located in the Tasman Sea, approximately 600 km east of mainland Australia, between Australia and New Zealand.

Why in News?

A 16-year study reported high levels of plastic ingestion among fledgling seabirds, highlighting the impact of marine plastic pollution.

Significant Facts:

It is an Australian external territory.

It is a UNESCO World Heritage Site.

It is of volcanic origin.

It supports several endemic species and important seabird populations.

Djibouti

Location:

Located in the Horn of Africa, bordering Eritrea, Ethiopia and Somalia. It has a coastline along the Red Sea and Gulf of Aden.

Why in News?

Djibouti signed the Artemis Accords in September 2026, joining international cooperation on peaceful space exploration.

Significant Facts:

Bab-el-Mandeb Strait lies near its coastline.

Lake Assal is one of the lowest points in Africa.

It is strategically located along major international shipping routes.

It hosts important foreign military bases.

Dakhla Oasis

Location:

Located in Egypt's Western Desert, in the Sahara Desert, west of the Nile Valley.

Why in News?

Archaeologists discovered a 1,700-year-old Roman-era pyramid-shaped tomb at Bir al-Shaghala in the Dakhla Oasis.

Significant Facts:

It is one of Egypt's major inland oases.

It forms part of the Western Desert.

The Nile Valley and Delta support the majority of Egypt's population.

Other important Egyptian oases include Kharga, Farafra and Siwa.

East Sea (Sea of Japan)

Location:

A marginal sea of the western Pacific Ocean, bordered by Japan, the Korean Peninsula and Russia.

Why in News?

North Korea launched a projectile towards the East Sea in September 2026, bringing attention to the region's geopolitical significance.

Significant Facts:

It is connected to the Pacific through several straits, including the Tsushima Strait.

The Korean Peninsula separates it from the Yellow Sea.

The Tsushima Warm Current influences its marine environment.

It is an important maritime region of Northeast Asia.

Lake Ontario (Lake America)

Location:

Lake Ontario is the easternmost of North America's five Great Lakes, situated between Ontario (Canada) and New York (USA).

Why in News?

US President Donald Trump signed an executive order renaming Lake Ontario as "Lake America" for official use in the United States. The change does not apply to Canada or the rest of the world.

Significant facts:

It receives water from Lake Erie through the Niagara River and drains into the St. Lawrence River, which flows into the Atlantic Ocean.

The Great Lakes system holds approximately 20% of the world's surface freshwater and supports drinking water, navigation and industries.

The renaming reflects tensions in US–Canada relations. There is no global authority that enforces uniform geographical names for water bodies.

Indian Places

Tso Kar Lake

Location:

Located in the Rupshu Valley of the Changthang region in Ladakh, at an altitude of approximately 4,660 metres.

Why in News?

The Ladakh administration launched an ecological restoration project in September 2026 to revive the shrinking lake by diverting glacier meltwater from the Rupsho Kharnak stream.

Significant Facts:

Tso Kar means White Lake.

The Tso Kar Wetland Complex received Ramsar status in 2020.

It comprises saline Tso Kar and freshwater Startsapuk Tso.

It is an important breeding habitat of the Black-necked Crane.

India

Bakhira Lake

Location:

Located in Sant Kabir Nagar district of eastern Uttar Pradesh, approximately 44 km west of Gorakhpur.

Why in News?

A paleoclimate study published in September 2026 analysed lake sediments to reconstruct approximately 25,000 years of Indian Summer Monsoon history.

Significant Facts:

Locally known as Bakhira Tal.

It is a natural oxbow and floodplain wetland.

Designated a Ramsar Site in 2022.

Bakhira Wildlife Sanctuary was established in 1980.

It supports migratory birds along the Central Asian Flyway.

Bhadra River

Location:

Originates in the Western Ghats of Karnataka and flows eastwards across the Deccan Plateau before joining the Tunga River at Koodli.

Why in News?

Water released from the Bhadra Reservoir reached Gonur Lake in drought-hit Chitradurga district in September 2026 under the Upper Bhadra Project.

Significant Facts:

Bhadra and Tunga rivers combine to form the Tungabhadra.

Tungabhadra is a major tributary of the Krishna.

Bhadra Reservoir is an important irrigation and water-supply source in Karnataka.

Idukki and Wayanad

Location:

Both are districts in Kerala, situated in the Western Ghats. Idukki lies in central Kerala, while Wayanad is in its northeastern highlands.

Why in News?

Both districts experienced significant southwest monsoon rainfall deficits in 2026, affecting agriculture and hydropower generation.

Significant Facts:

Idukki is known for its hydroelectric project and reservoir.

Wayanad forms part of the Nilgiri Biosphere Reserve.

Wayanad Wildlife Sanctuary is connected ecologically with Nagarhole, Bandipur and Mudumalai.

Both regions form part of the Western Ghats biodiversity landscape.

Poompuhar

Location:

Located in Mayiladuthurai district of Tamil Nadu, along the Coromandel Coast near the mouth of the Kaveri River.

Why in News?

Underwater archaeological excavations uncovered a West Asian torpedo jar, terracotta ring wells and several ceramic fragments.

Significant Facts:

Historically known as Kaveripoompattinam.

It was an important ancient port city of the Chola dynasty.

It supported maritime trade with overseas regions.

It is situated along the Bay of Bengal coastline.

Periyar Tiger Reserve

Location:

Located in the southern Western Ghats, primarily in Idukki district of Kerala, with parts extending towards Pathanamthitta.

Why in News?

A faunal survey conducted in September 2026 recorded six species for the first time in the tiger reserve.

Significant Facts:

Established in 1950 as a wildlife sanctuary.

Declared a tiger reserve in 1978.

Periyar Lake is an important geographical feature.

It supports elephants, tigers, Nilgiri langurs and other Western Ghats fauna.

Papikonda National Park

Location:

Located in the Eastern Ghats of Andhra Pradesh, along the Godavari River, across parts of Alluri Sitharama Raju and Eluru regions.

Why in News?

An Indian gaur was rescued from an illegal wire snare in the park's Eco-Sensitive Zone in September 2026.

Significant Facts:

Situated along the Godavari River.

Characterised by hilly terrain, deep river valleys and tropical moist deciduous forests.

Forms part of the Eastern Ghats biodiversity landscape.

The Godavari flows through a picturesque gorge in this region.



QUANTUM COMPUTING

Why in News?

India is accelerating the development of indigenous quantum technologies through the National Quantum Mission (NQM).

What is Quantum Computing?

Quantum computing is an advanced computing approach that uses principles of quantum mechanics to process information. Unlike classical computers, which use bits (0 or 1), quantum computers use qubits (quantum bits).

Key principles:

Superposition: A qubit can exist in a combination of 0 and 1 states until measured, enabling quantum systems to represent multiple possibilities.

Entanglement: Two or more qubits can become correlated, such that the state of one is linked to the state of another, even when separated.

Quantum interference: Quantum states can reinforce or cancel one another, helping algorithms increase the probability of desired outcomes.

Applications

Drug discovery: Simulating molecular interactions and chemical processes.

Cybersecurity: Developing quantum-safe encryption and secure communication systems.

Financial services: Optimising complex portfolios and risk models.

Defence: Secure communications, advanced sensing and navigation.

Materials science: Designing superconductors, batteries and advanced materials.

India's National Quantum Mission

Approved: April 2023.

Nodal department: Department of Science and Technology (DST).

Outlay: ₹6,003.65 crore for 2023–24 to 2030–31.

Target: Develop intermediate-scale quantum computers with 50–1,000 physical qubits.

Four thematic hubs:

Quantum Computing – IISc Bengaluru.

Quantum Communication – IIT Madras, in association with C-DOT.

Quantum Sensing and Metrology – IIT Bombay.

Quantum Materials and Devices – IIT Delhi.

Challenges

Qubits are highly sensitive to environmental disturbances, causing decoherence and computational errors.

Quantum hardware requires sophisticated infrastructure and specialised expertise.

High costs and scalability remain major constraints.

Large-scale practical quantum advantage is yet to be achieved for most applications.

ARTIFICIAL INTELLIGENCE AND AGENTIC AI

Why in News?

Rapid developments in advanced AI models have heightened concerns about the risks posed by agentic AI, prompting Anthropic, Google and OpenAI to explore industry-led AI standards.

Artificial Intelligence (AI)

Artificial Intelligence refers to machine-based systems that use input data to generate outputs such as predictions, recommendations, content or decisions that influence physical or virtual environments.

Major types of AI:

Narrow AI: Designed for specific tasks, such as facial recognition and voice assistants.

Generative AI: Creates new content such as text, images, audio and videos.

Agentic AI: Uses AI models to plan, make decisions and take actions to achieve a goal.

What is Agentic AI?

Agentic AI refers to AI systems capable of pursuing goals through autonomous decision-making and action.

Key features:

Autonomy: Performs tasks with limited human intervention.

Planning: Breaks complex objectives into smaller tasks.

Tool utilisation: Interacts with software, databases and external applications.

Memory: Retains relevant information to improve subsequent actions.

Adaptability: Modifies its approach based on feedback and changing conditions.

Example: A conventional AI chatbot may suggest travel destinations, whereas an AI agent can compare flights, identify accommodation and prepare an itinerary using connected services, subject to user permissions.

Applications

Healthcare: Supporting clinical workflows and patient scheduling.

Agriculture: Analysing weather, soil and crop data to assist farm decisions.

Governance: Automating document processing and citizen-service workflows.

Industry: Managing supply chains, predictive maintenance and production processes.

Education: Providing personalised learning assistance.

Opportunities:

Higher productivity, automation of complex tasks, improved public-service delivery and innovation.

Challenges:

Unintended autonomous actions, algorithmic bias, privacy violations, cyberattacks, unclear liability and excessive dependence on AI systems. Agentic AI may amplify these risks because it can take actions rather than merely generate information.

India's Initiatives

IndiaAI Mission: Launched in March 2024 with an outlay of ₹10,371.92 crore to strengthen India's AI ecosystem through seven pillars, including compute infrastructure, indigenous models, skilling and Safe & Trusted AI.

India AI Governance Guidelines: Released in November 2025, based on seven principles or Sutras: Trust, People First, Innovation over Restraint, Fairness and Equity, Accountability, Understandable by Design, and Safety, Resilience and Sustainability.

Way Forward:

Human oversight, transparent decision-making, risk-based regulation, cybersecurity safeguards and clear accountability are essential for responsible adoption.

WAKEFIELD ACCELERATOR (PLASMA WAKEFIELD ACCELERATION)

Why in News?

Advances in plasma wakefield acceleration are being explored as a potential alternative to conventional particle accelerators. The technology aims to accelerate charged particles over much shorter distances using powerful electric fields.

What is Wakefield Acceleration?

Wakefield acceleration is an advanced particle-acceleration technique that uses waves generated in plasma to accelerate charged particles to very high energies.

Plasma: An ionised gas containing free electrons and positively charged ions.

Driver: A high-energy laser pulse or particle beam that generates waves in plasma.

Witness particles: Charged particles that travel through these waves and gain energy.

How Does It Work?

An intense laser pulse or particle beam enters a plasma.

It displaces plasma electrons, creating regions of charge separation.

This generates powerful electric fields called plasma wakefields.

A trailing bunch of charged particles enters these fields and gains energy.

Types

Laser Wakefield Acceleration (LWFA): Uses an intense laser pulse to generate plasma waves.

Plasma Wakefield Acceleration (PWFA): Uses a high-energy electron, positron or proton beam to generate plasma waves.

Advantages

Can generate accelerating fields of tens to hundreds of gigavolts per metre (GV/m) under suitable conditions.

Potentially reduces accelerator size and infrastructure costs.

Enables the development of compact, high-energy particle accelerators.

Applications

Particle physics: Future high-energy particle colliders.

Medical science: Research into compact accelerators for cancer treatment.

Scientific research: Generation of high-brightness electron beams and X-rays.

Materials science: Advanced imaging and investigation of material properties.

SEMICON INDIA 2026

Why in News?

The fifth edition of SEMICON India 2026 was held from 17–19 September 2026 at Yashobhoomi, New Delhi. Organised jointly by the India Semiconductor Mission (ISM) and SEMI, the event was held under the theme "Silicon to Systems: Building the Ecosystem".

Key Highlights

Global participation: Over 600 exhibitors, including around 300 international companies, representatives from 52 countries and more than 150 speakers participated.

Attendance: The event recorded 51,656 registrations and approximately 40,000 cumulative footfall.

International collaboration: Six country pavilions represented Japan, South Korea, Malaysia, the Netherlands, Singapore and Sweden. Twelve State Pavilions showcased India's domestic capabilities.

Industry partnerships: 56 MoUs, announcements and strategic initiatives were recorded across semiconductor design, fabrication, advanced packaging, equipment, materials, research and skill development.

Innovation: Startup Pavilion, Innovation Showcase, student hackathons and workforce development programmes promoted industry–academia collaboration.

Major Developments

Commercial production: The Prime Minister virtually inaugurated commercial production lines at CDIL Semiconductor, Mohali, and Suchi Semicon, Surat. This took the number of operational commercial semiconductor units among the 12 projects approved under Semicon 1.0 to five.

Semicon 2.0: The event highlighted the transition towards developing capabilities across the entire semiconductor value chain.

Indigenous chip design: The Digital India RISC-V Grand Challenge recognised solutions developed using indigenous VEGA and SHAKTI processor-based System-on-Chips (SoCs).

International cooperation: Country roundtables facilitated partnerships in manufacturing, advanced packaging, equipment, materials, research and talent development.

Significance for India

Strengthens India's position in the global semiconductor supply chain.

Promotes domestic manufacturing and reduces import dependence.

Encourages technology transfer, investment and research.

Creates opportunities for skilled employment and deep-tech startups.

Supports strategic autonomy in electronics, defence, telecommunications and AI.

Challenges

High capital requirements, dependence on imported equipment and materials, water and energy needs, technology gaps and shortage of specialised talent remain key challenges.

REVERSE VACCINOLOGY AND UNIVERSAL PNEUMOCOCCAL VACCINE

Why in News?

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

What is Reverse Vaccinology?

Reverse vaccinology is a genome-based approach to vaccine development in which the complete genetic sequence of a pathogen is analysed using computational tools to identify proteins that could act as antigens and stimulate protective immune responses.

It was pioneered by scientist Rino Rappuoli around 2000 and first successfully applied in developing a vaccine against Neisseria meningitidis serogroup B, which causes meningitis and septicaemia.

Why a Universal Pneumococcal Vaccine?

Streptococcus pneumoniae causes pneumonia, meningitis and bloodstream infections.

It has more than 100 known serotypes, distinguished mainly by differences in their capsular polysaccharides.

Existing pneumococcal vaccines target selected serotypes rather than all variants.

Serotype replacement: Following vaccination, non-vaccine serotypes may become more prevalent, reducing the overall effectiveness of serotype-specific protection.

How does it work?

Genome sequencing: The complete genome of the pathogen is sequenced.

Bioinformatic screening: Computer-based analysis identifies genes encoding potential antigens, particularly proteins likely to be exposed on the pathogen's surface or secreted by it.

Antigen selection: Candidate proteins are screened for characteristics such as conservation across pathogen strains and potential immunogenicity.

Experimental validation: Selected candidates are tested in laboratory and animal studies to assess their ability to produce protective immune responses.

Clinical trials: Promising candidates undergo clinical testing for safety and efficacy before regulatory approval.

Advantages

Identifies potential vaccine targets faster than conventional antigen-discovery methods.

Can identify previously unknown antigens.

Reduces dependence on culturing pathogens, particularly those difficult to grow in laboratories.

Helps identify conserved antigens that may offer protection against multiple strains.

Limitations

Computational predictions do not guarantee that an antigen will produce protective immunity.

Requires experimental validation and clinical trials.

Classical reverse vaccinology primarily focuses on protein antigens and may not identify important non-protein targets such as polysaccharides.

PEPTIDE-BASED TECHNOLOGIES AND PIEZOELECTRIC BIOMATERIALS

Why in News?

Researchers from the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, in collaboration with IISER Kolkata and JNCASR Bengaluru, developed a method to enhance the piezoelectric properties of peptide-based nanomaterials

What are Peptide-Based Technologies?

Peptides are short chains of amino acids linked by peptide bonds. They are the building blocks of proteins and perform functions such as cell signaling, immune regulation and enzyme activity.

Peptide-based technologies utilise naturally occurring or synthetically engineered peptides in medicine, biotechnology, agriculture and material science.

Major applications:

Therapeutics: Peptide-based drugs are used in diabetes, obesity, cancer and hormonal disorders. Example: semaglutide.

Vaccine development: Synthetic peptides can mimic specific pathogen components and stimulate targeted immune responses.

Antimicrobial applications: Antimicrobial peptides can inhibit or destroy bacteria and fungi, offering potential alternatives against drug-resistant infections.

Drug delivery: Engineered peptides can transport therapeutic molecules to specific cells or tissues.

Agriculture: Peptide-based bio stimulants and bioprotective formulations can support plant growth and stress resistance.

Peptide-Based Piezoelectric Biomaterials

Piezoelectricity is the ability of certain materials to convert mechanical energy, such as pressure or vibration, into electrical energy.

Peptide-based piezoelectric biomaterials combine this property with the biocompatibility and biodegradability of peptides.

Researchers demonstrated that controlling peptide self-assembly can activate piezoelectric properties without chemically modifying the peptides.

In the reported study, adding just 1% of a suitable co-solvent reorganised peptide molecules into an ordered, chiral, non-centrosymmetric structure.

This arrangement aligned molecular dipoles, enabling mechanical-to-electrical energy conversion.

The engineered material exhibited a piezoelectric coefficient of approximately 30 pm/V.

Potential Applications

Biomedical devices: Self-powered implants using body movements such as heartbeat and breathing.

Biosensors: Monitoring physiological movements and biological signals.

Tissue engineering: Electrical stimulation to support tissue regeneration.

Wearable electronics: Flexible and potentially biodegradable sensing devices.

CYBER-PHYSICAL SYSTEMS (CPS)

Why in News?

The Department of Science and Technology (DST) is strengthening India's Cyber-Physical Systems ecosystem through the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS).

What are Cyber-Physical Systems?

Cyber-Physical Systems integrate computational algorithms, communication networks and physical processes. They use sensors to collect real-world data, process it through computing systems and control physical devices through actuators.

Key components:

Sensors: Collect real-time information from the physical environment.

Computing systems: Analyse data using AI, machine learning and algorithms.

Communication networks: Enable data exchange between connected devices.

Actuators: Execute physical actions based on computational decisions.

Applications

Healthcare: Remote patient monitoring, robotic surgery and smart medical devices.

Agriculture: Precision farming, automated irrigation and soil monitoring.

Transportation: Autonomous vehicles, intelligent traffic management and navigation.

Manufacturing: Smart factories, industrial automation and predictive maintenance.

Smart cities: Intelligent power grids, water management and surveillance systems.

National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)

Approved: December 2018.

Nodal agency: Department of Science and Technology.

Outlay: ₹3,660 crore; extended until December 2027.

Objective: Develop indigenous CPS technologies through research, skill development, innovation, startups and commercialisation.

Institutional framework: 25 Technology Innovation Hubs (TIHs) established in premier academic institutions.

Four TIHs have been upgraded into Technology Translation Research Parks (TTRPs) at IIT Kanpur, IISc Bengaluru, IIT (ISM) Dhanbad and IIT Indore.

Challenges

Cybersecurity threats, data privacy concerns, interoperability issues, high implementation costs and dependence on imported components can constrain CPS deployment.

COSMOCUBE AND PRATUSH MISSIONS

Why in News?

The proposed CosmoCube mission gained attention following the publication of its scientific proposal in Nature Astronomy. It aims to study the early Universe using radio signals from neutral hydrogen. India's PRATUSH is a similar proposed lunar radio-astronomy mission.

CosmoCube Mission

A proposed international lunar-orbiting CubeSat mission led by researchers from the University of Cambridge.

Aims to study the Cosmic Dark Ages, Cosmic Dawn and Epoch of Reionisation.

Will detect the faint 21-cm radio signal emitted by neutral hydrogen.

The Moon's far side will shield the satellite from Earth-based radio-frequency interference.

Proposed orbital altitude: approximately 100 km; expected mission duration: two years.

PRATUSH Mission

Full form: Probing ReionizATion of the Universe using Signal from Hydrogen.

Proposed by researchers at the Raman Research Institute (RRI), Bengaluru, an autonomous institute supported by the Department of Science and Technology.

Aims to measure the global 21-cm signal to investigate the Cosmic Dawn and Epoch of Reionisation.

Envisages a precision spectral radiometer operating in lunar orbit, with observations from the Moon's far side.

A laboratory model of its radiometer and a compact digital receiver based on a single-board computer have been developed.

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Scientific Significance

21-cm hydrogen line: Radio emission from neutral hydrogen, produced by a spin-flip transition, with a rest wavelength of 21 cm.

Cosmic Dark Ages: Period after the formation of the cosmic microwave background (CMB) and before the first stars.

Cosmic Dawn: Period when the first stars and galaxies began forming.

Epoch of Reionisation: Period when radiation from early stars and galaxies ionised much of the neutral hydrogen in the Universe.

NANCY GRACE ROMAN SPACE TELESCOPE

Why in News?

NASA launched the Nancy Grace Roman Space Telescope on 30 August 2026 to investigate dark energy, dark matter, exoplanets and the evolution of the Universe. It is designed to conduct wide-field astronomical surveys with a field of view at least 100 times larger than that of the Hubble Space Telescope.

Key Features

Agency: NASA.

Named after: Dr Nancy Grace Roman, NASA's first Chief of Astronomy and a pioneer of space-based astronomy.

Observing range: Primarily near-infrared.

Primary mirror: 2.4 metres in diameter, comparable to Hubble.

Field of view: Its Wide Field Instrument captures a much larger area of the sky than Hubble.

Major Scientific Objectives

Dark Energy: Study the accelerated expansion of the Universe and investigate the nature of dark energy.

Dark Matter: Map its distribution through gravitational lensing, which reveals how gravity bends light.

Exoplanets: Conduct a statistical census of planets outside our Solar System using gravitational microlensing.

Galaxy Evolution: Observe billions of galaxies to understand their formation and evolution.

Important Instruments

Wide Field Instrument (WFI): A 300-megapixel infrared camera designed for large-scale surveys.

Coronagraph Instrument: Blocks the intense light from stars to directly observe faint surrounding objects, including exoplanets and planet-forming discs.

Significance

Enables large-scale mapping of the Universe.

Improves understanding of dark energy and cosmic expansion.

Helps identify planetary systems and potentially habitable worlds.

Complements the observations of Hubble and James Webb Space Telescope.

ASTRORAD: WEARABLE RADIATION PROTECTION FOR ASTRONAUTS

Why in News?

A study published in Science Advances reported the first detailed evaluation of the AstroRad radiation-protection vest using data from NASA's uncrewed Artemis I lunar mission. The study found that the vest could significantly reduce astronauts' radiation exposure during major solar particle events.

What is AstroRad?

AstroRad is a wearable radiation-shielding vest developed by StemRad, with support from the Israel Space Agency and Lockheed Martin.

It is designed to protect astronauts from Solar Particle Events (SPEs), which release large quantities of energetic charged particles, mainly protons, from the Sun.

It uses hydrogen-rich high-density polyethylene (HDPE) shielding.

Its thickness varies across the body to provide targeted protection to radiation-sensitive organs, including bone marrow, lungs and breast tissue, without significantly restricting movement.

Artemis I Experiment: MARE

AstroRad was evaluated through the Matroshka AstroRad Radiation Experiment (MARE) aboard NASA's uncrewed Artemis I mission in 2022.

Two human-like female tissue-equivalent mannequins were placed inside the Orion spacecraft:

Zohar: Wore the AstroRad vest.

Helga: Remained unshielded.

More than 5,600 sensors measured radiation exposure.

The 2026 study estimated potential effective-dose reductions of approximately 60% during an August 1972-like solar particle event and nearly 40% during an October 1989-like event.

Significance

Improves astronaut safety during long-duration lunar and Mars missions.

Provides targeted protection against harmful space radiation.

Could complement spacecraft shielding and dedicated solar-storm shelters.

Limitation:

Artemis I did not experience a major solar particle event. The reported protection levels were estimated using radiation measurements and simulations, not direct observations during an actual solar storm.

ELIAS 2-24 B: EXOPLANET AND PLANETARY FORMATION

Why in News?

In September 2026, NASA announced the confirmation of Elias 2-24 b, identified as the youngest known exoplanet, with an estimated age of less than one million years. The discovery provides an opportunity to study planet formation at an exceptionally early stage.

What is Elias 2-24 b?

An extremely young gas-giant exoplanet orbiting a K-type star.

Located approximately 54.9 astronomical units (AU) from its host star.

Has an estimated mass of 2.95 times that of Jupiter.

Its estimated orbital period is approximately 460.8 years.

It is still embedded in the surrounding disc of gas and dust from which it formed.

How Was It Discovered?

Researchers analysed archival observations from the W. M. Keck Observatory in Hawaii.

A coronagraph was used to block the bright light of the host star and detect the faint planet.

Observations from 2018 and 2020 helped confirm the object's orbital motion.

The European Southern Observatory's Very Large Telescope (VLT) provided additional confirmation.

Significance for Planetary Formation

Core Accretion Model: Suggests that solid material accumulates to form a planetary core, which subsequently attracts surrounding gas.

Disc Instability Model: Proposes that gravitational instability within a protoplanetary disc can cause gas and dust to collapse into giant planets.

The presence of a young Jupiter-mass planet at such a large orbital distancechallenges existing models of how quickly giant planets can form.

Role of Future Observatories

NASA's Nancy Grace Roman Space Telescope, equipped with a coronagraph, is expected to improve direct imaging of exoplanets and planet-forming systems.

BLAZARS

Why in News?

In September 2026, astronomers reported the discovery of the first identified microblazar in the Milky Way. The system contains a stellar-mass black hole producing a relativistic jet directed towards Earth. Its jet interacts with a molecular cloud, accelerating particles to extremely high energies.

What are Blazars?

Blazars are among the brightest and most energetic objects in the Universe.

They are a type of Active Galactic Nucleus (AGN) powered by a supermassive black hole at the centre of a galaxy.

Matter falling towards the black hole forms an accretion disc, releasing enormous energy.

Powerful jets of charged particles are expelled from the region around the black hole.

When one of these relativistic jets points almost directly towards Earth, the object is classified as a blazar.

Major Characteristics

High luminosity: Emit radiation across the electromagnetic spectrum, including radio waves, visible light, X-rays and gamma rays.

Rapid variability: Their brightness can change significantly over short periods.

Relativistic jets: Charged particles travel at speeds approaching that of light.

Doppler boosting: Radiation appears exceptionally bright when the jet is directed towards the observer.

Types of Blazars

BL Lacertae objects (BL Lacs): Generally exhibit weak or absent emission lines in their spectra.

Flat Spectrum Radio Quasars (FSRQs): Characterised by prominent emission lines and powerful radio emission.

What are Microblazars?

Unlike conventional blazars, which involve supermassive black holes, microblazars involve stellar-mass black holes or similar compact objects producing jets directed towards Earth.

The 2026 discovery demonstrated that such systems can accelerate particles to the peta-electronvolt (PeV) energy range.

Significance

Blazars help scientists understand black-hole physics, relativistic jets, high-energy cosmic rays and the evolution of galaxies.

ADITYA-L1 AND SOLAR ACTIVITY

Why in News?

Scientists used data from ISRO's Aditya-L1 and the European Space Agency's Proba-3 to study coronal mass ejections (CMEs). Their joint observations provided new insights into the structure, mass and evolution of solar eruptions close to the Sun.

Aditya-L1 Mission

Launched: 2 September 2023, by PSLV-C57.

India's first dedicated space-based solar observatory.

Positioned in a halo orbit around the Sun–Earth Lagrange Point 1 (L1), approximately 1.5 million km from Earth.

Carries seven scientific payloads to study the Sun's photosphere, chromosphere and corona, along with solar particles and magnetic fields.

Understanding Solar Activity

Solar Flares: Sudden bursts of electromagnetic radiation caused by the release of magnetic energy in the Sun's atmosphere.

Coronal Mass Ejections (CMEs): Large expulsions of magnetised plasma from the solar corona into interplanetary space.

Solar Wind: Continuous flow of charged particles released by the Sun.

Solar Cycle: Approximately 11-year periodic variation in solar activity and magnetic-field strength.

Recent Scientific Findings

Aditya-L1's Visible Emission Line Coronagraph (VELC) and Proba-3's ASPIICS jointly observed CMEs, helping scientists study their early expansion.

Its observations have also revealed short-lived brightening events that may precede major solar flares, potentially improving understanding of flare development.

Significance

Solar activity can cause geomagnetic storms, disrupting satellite operations, GPS navigation, radio communication and power grids. Studying it improves understanding of space weather and its potential impacts on technological infrastructure.

TRISHNA SATELLITE MISSION

Why in News?

The India–France joint Earth-observation mission TRISHNA is scheduled for launch in 2027. The mission is being jointly developed by the Indian Space Research Organisation (ISRO) and France's National Centre for Space Studies (CNES) to monitor Earth's surface temperature, water stress and vegetation health.

Key Features

Full form: Thermal Infra-Red Imaging Satellite for High-resolution Natural Resource Assessment.

Type: Earth-observation satellite mission.

Orbit: Sun-synchronous orbit at an altitude of approximately 761 km.

Mission life: Five years.

Launch: Planned aboard India's PSLV from Sriharikota.

Payloads

Thermal Infra-Red (TIR): Developed by CNES; uses four thermal infrared channels to measure land-surface temperature and emissivity.

Visible–Near Infrared–Short Wave Infrared (VNIR-SWIR): Developed by ISRO; uses seven spectral bands to study vegetation and surface characteristics.

Objectives and Applications

Agriculture: Assess crop-water stress, irrigation requirements and water-use efficiency.

Water management: Monitor evapotranspiration and terrestrial water stress.

Urban planning: Map urban heat islands and thermal patterns.

Climate research: Study droughts, glacier dynamics and snowmelt.

Water bodies: Monitor the quality and dynamics of inland and coastal waters.

Geological studies: Detect thermal anomalies associated with volcanic and geothermal activity.

Significance

Supports climate-resilient agriculture and efficient irrigation.

Strengthens India's Earth-observation and remote-sensing capabilities.

Provides high-resolution data for sustainable natural-resource management.

Deepens India–France cooperation in space technology.

EARTH OBSERVATION SATELLITE (EOS-05)

Why in News?

ISRO successfully launched EOS-05 aboard GSLV-F17 on 29 August 2026. The satellite was placed into its intended sub-geosynchronous transfer orbit. It is India's first imaging Earth-observation satellite designed for operation from geosynchronous orbit.

Key Features

Type: Earth-observation satellite.

Launch vehicle: GSLV-F17.

Launch site: Satish Dhawan Space Centre, Sriharikota.

Orbit: Geosynchronous operational orbit following transfer and orbit-raising operations.

Purpose: Earth observation and monitoring of terrestrial and environmental processes.

What is a Geosynchronous Orbit?

A geosynchronous orbit has an orbital period equal to Earth's rotational period (approximately 23 hours 56 minutes).

A satellite in an equatorial circular geostationary orbit appears stationary relative to a point on Earth.

Geosynchronous orbits can be inclined or elliptical, unlike geostationary orbits.

Applications of Earth Observation Satellites

Agriculture: Crop monitoring, drought assessment and agricultural planning.

Disaster Management: Monitoring floods, cyclones, landslides and forest fires.

Water Resources: Mapping reservoirs, rivers and groundwater-related indicators.

Urban Planning: Monitoring urban expansion and infrastructure development.

Environmental Monitoring: Tracking land-use changes, vegetation and natural resources.

Significance

Strengthens India's indigenous Earth-observation capabilities.

Supports resource management and disaster preparedness.

Enhances the use of satellite-based data for governance and planning.

Demonstrates the operational capabilities of the GSLV launch vehicle.





SECURITY

RAKSHA: INDIA'S DEFENCE DIPLOMACY ROADMAP

Why in News?

On September 2026, Defence Minister Rajnath Singh released the 'RAKSHA' document on Defence Diplomacy in New Delhi. It outlines India's strategic roadmap for strengthening global defence partnerships over the next ten years, aligning national security priorities with international cooperation.

What is Defence Diplomacy?

Defence diplomacy refers to the use of military resources, defence institutions and security cooperation as instruments of foreign policy to build trust, strengthen bilateral relations, prevent conflicts and promote regional stability. It operates through joint military exercises, defence agreements, training programmes, military exchanges and defence exports.

Key Pillars of the RAKSHA Framework

The document identifies four major pillars:

1. **Strategic Partnerships:** Strengthening bilateral and multilateral defence cooperation with friendly countries through institutional engagements, defence dialogues and security partnerships.
2. **Capacity Building:** Expanding joint military exercises, training programmes, military exchanges and sharing of best practices to enhance the operational capabilities of partner nations.
3. **Indigenous Defence Exports:** Promoting Make in India defence platforms and equipment to establish India as a reliable global defence manufacturing and export hub. It also seeks to strengthen defence-industrial cooperation through technology partnerships and co-production.

4. **Maritime Security:** Reinforcing India's role as a Net Security Provider and First Responder in the Indian Ocean Region (IOR), particularly through maritime cooperation, humanitarian assistance and disaster relief (HADR) operations.

Strategic Significance for India

- **Enhanced Geopolitical Influence:** Strengthens India's strategic presence in the Indo-Pacific and its engagement with the Global South.
- **Strategic Autonomy:** Diversifies defence partnerships and reduces excessive dependence on a limited number of defence suppliers.
- **Economic Diplomacy:** Connects defence manufacturing, technology transfer and exports with India's broader economic interests.
- **Regional Stability:** Promotes maritime security, counter-terrorism cooperation and coordinated responses to emerging security threats.
- **Global Leadership:** Reinforces India's image as a responsible security partner and contributor to a rules-based international order.

Challenges

Balancing strategic autonomy with competing geopolitical interests, dependence on imported critical defence technologies, export competitiveness, technology-transfer restrictions and concerns among smaller neighbouring countries about regional power asymmetry remain significant challenges.

Way Forward

India should strengthen indigenous R&D, promote joint development and technology transfer, ensure reliable after-sales support for defence exports and deepen institutional coordination between the Ministry of Defence and Ministry of External Affairs. An inclusive, consultative approach towards smaller Indian Ocean nations will help translate defence diplomacy into sustainable regional partnerships.

FINANCIAL ACTION TASK FORCE (FATF) REPORT ON MONEY LAUNDERING

Why in News?

The Financial Action Task Force (FATF) released a report titled Investigating Professional Money Laundering, Underground Banking, and the Use of Hawala and Other Similar Service Providers (HOSSPs). It highlights the growing misuse of informal financial networks, digital platforms and professional intermediaries for cross-border money laundering and terrorist financing.

Key Findings of the Report

1. **Growing Role of Underground Banking:** More than 80% of reporting jurisdictions identified underground banking and HOSSPs as major channels used by professional money launderers.

2. **Professionalisation of Money Laundering:** Criminal networks increasingly outsource laundering activities to specialised intermediaries, transforming money laundering into a commercialised service. Some cases involved laundering over €500 million within a few months.
3. **Digital Hawala:** Nearly 70% of respondents identified the integration of new technologies into informal financial networks. Criminals increasingly use encrypted messaging applications, mobile wallets, fintech platforms, virtual assets and stablecoins to transfer illicit funds.
4. **Involvement of Professionals:** Lawyers, accountants, auditors, real estate agents, financial consultants and corporate service providers may facilitate illicit financial transactions by exploiting regulatory loopholes.
5. **Expanding Criminal Activities:** These networks are increasingly associated with cyber fraud, drug trafficking, human trafficking, illegal gambling, organised crime and terrorist financing.

About FATF

Established in 1989, FATF is an intergovernmental body headquartered in Paris, France.

It develops international standards to combat money laundering, terrorist financing and proliferation financing.

Its framework comprises 40 Recommendations, implemented through national legal and regulatory systems.

India became a full member in 2010.

India's Position and Concerns

India's 2024 FATF Mutual Evaluation Report placed it in the Regular Follow-up category. FATF recognised India's effective use of digital financial systems and progress in combating illicit financial flows. However, it highlighted concerns regarding delays in prosecution, terrorist financing risks and supervision of certain non-financial sectors.

Significance and Way Forward

The findings underline the need for stronger cross-border financial intelligence sharing, beneficial ownership transparency, regulation of virtual asset service providers and enhanced monitoring of suspicious transactions. India should strengthen coordination among the Enforcement Directorate (ED), Financial Intelligence Unit–India (FIU-IND), RBI and other agencies, while ensuring that legitimate informal financial services are not unnecessarily disrupted.

DRDO'S SHIELD PROGRAMME AND HIGH-POWER MICROWAVE TECHNOLOGY

Why in News?

In September 2026, the Defence Research and Development Organisation (DRDO) invited Indian private-sector companies to participate in its SHIELD programme under the Technology Development Fund (TDF). The initiative aims to develop an indigenous high-power microwave evaluation system to assess the vulnerability of electronic systems, particularly drones, to directed-energy attacks.

What is the SHIELD Programme?

- SHIELD: S-band High-Power Microwave Integrated Evaluation System for Lethality and Damage.
- Nodal agency: DRDO.
- Objective: To develop a specialised testing platform that measures the effects of high-power microwave radiation on drones, sensors, communication systems, radars and other electronic equipment.
- It is an evaluation and testing infrastructure, not a deployable weapon itself.
- It is being developed through industry participation under the Technology Development Fund.

Understanding High-Power Microwave (HPM) Technology

- HPM is a directed-energy technology that uses concentrated electromagnetic energy to disrupt or damage the electronic components of a target.
- It can interfere with flight-control systems, navigation equipment, sensors and communication links without physically destroying the target.
- It is considered a soft-kill technology, as it neutralises electronic functionality rather than relying on physical destruction.
- It is particularly relevant for countering drone swarms, where conventional missiles and ammunition may be expensive.

Key Technological Features

- Gallium Nitride (GaN): Uses GaN-based Solid State Power Amplifiers (SSPA), offering high power density and efficiency.
- S-band: Operates in the microwave frequency range of approximately 2–4 GHz.
- Pulsed Operation: Enables controlled exposure to microwave radiation to assess different levels of electronic disruption and damage.
- Thermal Management: Helps manage the heat generated during high-power operations.

Strategic Significance for India

Strengthens indigenous counter-unmanned aircraft systems (C-UAS) capabilities.

Supports electronic warfare and next-generation directed-energy weapons.

Reduces dependence on imported defence technologies.

Encourages private-sector participation, including start-ups and MSMEs.

Helps develop electromagnetic protection and resilience for Indian military platforms.

Challenges

High development costs, thermal management, electromagnetic interference, testing complexity and ensuring effectiveness against different types of electronic systems remain key challenges.

Way Forward

India should strengthen indigenous semiconductor and microwave research, expand DRDO–industry collaboration and establish advanced testing facilities. Integrating HPM technology with radar, electronic warfare and conventional air-defence systems can create a layered counter-drone architecture.

INDIA SIGNS UN CONVENTION AGAINST CYBERCRIME

Why in News?

India signed the United Nations Convention against Cybercrime on 25 September 2026, marking an important step towards strengthening international cooperation in combating cybercrime. The Convention provides a global legal framework for investigating cyber-dependent crimes, sharing electronic evidence and facilitating cross-border law-enforcement cooperation.

About the UN Convention against Cybercrime

- Formally titled United Nations Convention against Cybercrime: Strengthening International Cooperation for Combating Certain Crimes Committed by Means of Information and Communications Technology Systems and for the Sharing of Evidence in Electronic Form of Serious Crimes.
- Adopted by the UN General Assembly on 24 December 2024 through Resolution 79/243.
- Negotiated over five years by an Ad Hoc Committee, with the UN Office on Drugs and Crime (UNODC) serving as the secretariat.
- Opened for signature in Hanoi, Vietnam, on 25–26 October 2025.

Key Provisions

- Criminalisation: Covers illegal access to computer systems, illegal interception, data and system interference, online fraud, child sexual abuse material, online grooming and non-consensual dissemination of intimate images.
- Electronic Evidence: Establishes a framework for collecting, preserving, sharing and using electronic evidence in criminal investigations.
- International Cooperation: Facilitates mutual legal assistance, extradition and cross-border cooperation in investigating cybercrime.
- 24/7 Cooperation Network: Establishes a round-the-clock network to facilitate urgent assistance in preserving electronic evidence.
- Capacity Building: Promotes technical assistance, training and technology transfer, particularly for developing countries.

Significance for India

- Cross-border Cybercrime: Enables faster cooperation in investigating international cyber fraud, ransomware attacks, phishing and digital financial crimes.
- Electronic Evidence: Helps Indian investigating agencies obtain and preserve digital evidence located in foreign jurisdictions.
- National Security: Strengthens cooperation against cyber-enabled terrorism, organised crime and attacks on critical information infrastructure.
- Digital Economy: Improves confidence in India's digital payment ecosystem and online services.
- Global Cooperation: Provides India an opportunity to contribute to international cybercrime governance, particularly representing the interests of developing countries.

Concerns and Challenges

The Convention has raised concerns regarding potential misuse of cross-border data-sharing powers, excessive surveillance, privacy violations and restrictions on freedom of expression. Broad definitions of certain offences could also create scope for criminalising legitimate online activities. Effective human-rights safeguards and judicial oversight are therefore essential.

India's Existing Legal Framework

India primarily addresses cybercrime through:

- Information Technology Act, 2000.
- Bharatiya Nyaya Sanhita, 2023.
- Digital Personal Data Protection Act, 2023.

Way Forward

India should harmonise its domestic legal framework with the Convention while ensuring constitutional safeguards, data protection and procedural oversight. Strengthening CERT-In, cyber forensic capabilities, international information-sharing mechanisms and specialised cybercrime investigation units will be essential.

POLICE MODERNISATION MISSION (PMM)

Why in News?

In September 2026, the Union Government informed the Supreme Court about the proposed Police Modernisation Mission (PMM), a comprehensive umbrella programme with an estimated outlay of ₹24,000 crore over five years. The mission aims to modernise the internal security capabilities of State police forces, Central Armed Police Forces (CAPFs) and central security agencies through technology-driven investments and institutional reforms.

Key Features of the Mission

Financial Outlay: Proposed investment of ₹24,000 crore over five years.

Coverage: State and UT police forces, CAPFs and Central Government security and intelligence agencies.

Technology Integration: Modernisation of surveillance systems, communication networks, command-and-control centres and digital policing infrastructure.

CCTV Infrastructure: Strengthening installation, functioning and monitoring of CCTV cameras in police stations to improve transparency and accountability.

Capacity Building: Upgradation of weapons, mobility, forensic facilities, cybercrime investigation tools and personnel capabilities.

Integrated Approach: Seeks to consolidate modernisation initiatives through targeted investments, institutional reforms and technology-led transformation.

Need for Police Modernisation

Emerging Security Threats: Increasing cybercrime, terrorism, organised crime, drug trafficking and financial fraud require specialised capabilities.

Technological Advancement: AI, digital forensics, facial recognition and data analytics can improve crime detection and investigation.

Police Accountability: Functional CCTV systems can help prevent custodial violence and protect human rights.

Operational Efficiency: Modern communication and mobility systems improve emergency response and coordination.

Constitutional and Institutional Framework

Under the Seventh Schedule, Police and Public Order are State subjects (State List, Entries 2 and 1 respectively).

The Ministry of Home Affairs (MHA) coordinates central assistance.

The Bureau of Police Research and Development (BPR&D) promotes police research, training and modernisation.

Challenges

Federal coordination, inadequate police personnel, underutilisation of funds, maintenance costs, technological dependence and concerns over surveillance and privacy may hinder implementation.

Way Forward

PMM should integrate technology with structural police reforms, adequate recruitment, professional training and independent accountability mechanisms. Effective implementation of the Supreme Court's Prakash Singh (2006) directions, alongside community-oriented SMART policing, is essential to transform policing into a citizen-centric public service.

KAVERI ENGINE: INDIA'S INDIGENOUS AERO-ENGINE DEVELOPMENT

Why in News?

In September 2026, India's indigenous Kaveri Derivative Engine (KDE), developed by the Defence Research and Development Organisation (DRDO), successfully completed high-altitude and flight trials in Russia. The engine achieved a peak dry thrust of 48.5 kN, exceeding its target of approximately 46 kN. It is intended to power India's indigenous Ghatak stealth Unmanned Combat Aerial Vehicle (UCAV).

About the Kaveri Engine

Developer: Gas Turbine Research Establishment (GTRE), Bengaluru, under DRDO.

Origin: Sanctioned in 1989 to develop an indigenous turbofan engine for the Light Combat Aircraft (LCA) Tejas.

Original Objective: To reduce dependence on foreign aircraft engines and establish indigenous aerospace propulsion capabilities.

The original engine faced challenges in achieving the required thrust-to-weight ratio and was delinked from the Tejas programme in 2008. Tejas subsequently adopted GE F404 engines.

Kaveri Derivative Engine (KDE)

- A modified, non-afterburning (dry) version of the original Kaveri engine.
- Designed primarily for unmanned combat aircraft, particularly the Ghatak UCAV.
- Achieved 48.5 kN peak dry thrust during reported Russian trials.

- Underwent high-altitude testing at the Central Institute of Aviation Motors (CIAM) and flight testing at the Gromov Flight Research Institute using a modified IL-76 flying testbed.
- Further airworthiness certification and integration remain necessary.

Strategic Significance

- Defence Indigenisation: Reduces dependence on foreign propulsion technologies.
- Technological Capability: Develops expertise in high-temperature turbine blades, advanced materials, compressors and engine control systems.
- Strategic Autonomy: Strengthens India's ability to design and manufacture advanced military aircraft.
- Unmanned Warfare: Supports the development of indigenous stealth UCAV capabilities.
- Industrial Ecosystem: Creates opportunities for Indian public-sector industries, private manufacturers and research institutions.

Challenges

Developing single-crystal turbine blades, high-temperature alloys, advanced compressors, fuel efficiency and reliable engine performance remains technologically demanding. Limited domestic high-altitude testing infrastructure has also increased dependence on foreign facilities.

Way Forward

India should strengthen indigenous material science, establish advanced aero-engine testing infrastructure, promote DRDO–industry collaboration and accelerate next-generation engine development. Sustained investment in research and development is essential to achieve self-reliance in military aviation propulsion.

NEXT GENERATION MISSILE VESSELS (NGMV)

Why in News?

On September 2026, the keel-laying ceremony of the first Next Generation Missile Vessel (NGMV) for the Indian Navy was held at Cochin Shipyard Limited (CSL), Kochi. The project involves construction of six high-speed, weapon-intensive vessels to strengthen India's maritime strike and sea-denial capabilities in the Indian Ocean Region (IOR).

About the NGMV Project

- Builder: Cochin Shipyard Limited (CSL), Kochi.
- Contract: Signed with the Ministry of Defence in March 2023.
- Total Vessels: Six.
- Project Cost: Approximately ₹9,805 crore.

- Induction: Planned from 2027 onwards.
- Maximum Speed: Approximately 33 knots.
- Crew: Around 80 personnel per vessel.

Key Features and Weapon Systems

- **Missile Capability:** Equipped with surface-to-surface missile systems, including provision for advanced anti-ship strike capabilities.
- **Defence Systems:** Anti-missile defence systems for protection against incoming threats.
- **Advanced Sensors:** Air-surveillance radars, fire-control radars and integrated sensor systems.
- **High-speed Propulsion:** Waterjet-based propulsion enhances manoeuvrability and operational flexibility.
- **Integrated Platform Management:** Advanced systems for propulsion, power generation, machinery control and damage management.
- Operational Roles
- **Maritime Strike Operations:** Attacking enemy warships, merchant vessels and land-based targets.
- **Anti-Surface Warfare:** Engaging hostile surface vessels.
- **Sea Denial:** Restricting adversary naval movement, particularly around strategic maritime chokepoints.
- **Coastal Defence:** Supporting local naval defence and protecting offshore development areas.

Strategic Significance for India

- **Indian Ocean Security:** Strengthens India's ability to protect maritime trade routes and strategic sea lanes.
- **Deterrence:** Enhances India's capacity to counter hostile naval deployments.
- **Aatmanirbhar Bharat:** Promotes indigenous development and manufacturing of major weapon and sensor systems.
- **Defence Industrial Base:** Strengthens domestic shipbuilding and creates opportunities for Indian defence industries.

Way Forward

India should strengthen indigenous propulsion, advanced radar and missile technologies, enhance shipyard capabilities and integrate NGMVs with maritime surveillance networks. Their deployment alongside submarines, aircraft and larger surface combatants will support a credible, layered maritime defence architecture.



HISTORY







SAPTAKOTESHWAR TEMPLE (GOA)

Context:

14th–16th century temple relics—indicating an ancient temple complex and corridor—were discovered during restoration at the old Saptakoteshwar Temple site on Goa's Divar Island.

Archaeological Discoveries:

Includes a 'Kirtimukh' motif (traditionally carved above doorways), a carved temple pillar capital, and fragments of 'Dev Khostam' (used for placing idols).

Historical Origins:

Dedicated to Lord Shiva and originally associated with the Kadamba dynasty (10th–14th century).

Destruction & Reconstruction:

Destroyed during Bahmani rule and rebuilt in 1391 by a minister of the Vijayanagar kingdom (evidenced by diverse stone typologies and motifs). Destroyed again during 16th-century Portuguese rule.

Relocation by Shivaji:

The deity's idol was shifted across the river to Bicholim, where Chhatrapati Shivaji Maharaj established a new temple in 1668.

REVIVAL OF DOGRI SCRIPT (NAMEY DOGRA AKHAR)

Context:

New public signboards in Jammu now display area names in the Namey Dogra Akhar script alongside Devanagari (Hindi) and Roman (English) to revive the endangered script.

About Dogri Language:

An Indo-Aryan language (Indo-European family) belonging to the Western Pahari group. Primarily spoken by Dogras in Jammu division, with smaller groups in Punjab, Himachal Pradesh, and Pakistan-occupied Kashmir.

Constitutional & Official Status:

Added to the Eighth Schedule (22 scheduled languages) in 2003; declared an official language of the UT of Jammu & Kashmir in 2020. Long written in Devanagari as its native script fell into disuse.

Origin of Namey Dogra Akhar:

A modified version of Takri (the original Dogri script used until Maharaja Gulab Singh, first Dogra ruler of J&K). Maharaja Ranbir Singh (ascended 1856; Sanskrit/ Persian scholar who compiled the Ranbir Penal Code) found Takri unsuitable for official orders due to missing vowel signs and had writers borrow vowels from Devanagari.

Historical Usage:

Known literally as the 'new Dogri script', it was adopted for official court and administrative work alongside Persian.

RAMANATHASWAMY TEMPLE

Context:

Featured as the cultural backdrop when the Indian Prime Minister welcomed global leaders at the 18th BRICS Summit in New Delhi.

Location & Deity:

Rameswaram, Ramanathapuram district, Tamil Nadu. Dedicated to Lord Shiva (one of 12 Jyotirlingas) and the only Shiva temple among the four Char Dham sites (Badrinath, Dwarka, Puri, Rameswaram).

Religious Traditions: Revered in both Shaiva and Vaishnava traditions (Lord Rama worshipped Shiva here after defeating Ravana). Praised in Bhakti hymns by Shaiva saints Appar (Tirunavukkarasar) and Tirugnana Sambandar.

Architecture:

Dravidian style; famous for its outer corridor with 1,212 carved stone pillars (showcased at the BRICS Summit) and 22 sacred Theerthams.

SHEKHAWATI HAVELIS IN UNESCO TENTATIVE LIST

Context:

Rajasthan's historic painted Shekhawati havelis across 14 towns have been inscribed on India's UNESCO Tentative List as a preliminary step toward World Heritage status.

Geographic Spread (14 Towns):

Located in northeastern Rajasthan across Alsisar, Bissau, Chirawa, Churu, Dundlod, Fatehpur, Jhunjhunu, Khetri, Laxmangarh, Mandawa, Mahansar, Nawalgarh, Ramgarh, and Sikar.

Architectural & Artistic Heritage:

Elaborately painted havelis built largely by merchant families, featuring ornate façades, courtyards, gateways, and fresco-covered interiors.

Themes of the Murals:

Document social and cultural history—religious/mythological themes, personal portraits, family trees, everyday life, flora and fauna, and 19th–early 20th century technological shifts (new transport, changing lifestyles, external influences).

UNDERWATER EXCAVATIONS AT POOMPUHAR

Context:

An 18-day underwater exploration off Poompuhar by TNSDA and Indian Maritime University found a West Asian torpedo jar fragment, 250+ ceramic pieces, and four terracotta ring wells.

About Poompuhar:

Also known as Puhar or Kaveripoompattinam (Mayiladuthurai district, Tamil Nadu) at the Cauvery River mouth. Key early Chola port city and capital; carbon-dated wooden log places habitation around 5th–4th century BCE.

Urban Layout & Literature:

Three divisions: Maruvurppakkam (coastal), Pattinappakkam (western), and Nalangadi (market). Cited in Sangam/post-Sangam works: Pattinappalai, Silappadikaram, and Manimekalai.

Recent Finding	Historical Significance
West Asian Torpedo Jar Fragment	Long, narrow vessel linked to Persian Gulf/Indian Ocean trade; carried liquids like wine and olive oil.
Glazed Pottery	Indicates maritime commercial contacts with ancient Iran and West Asia.
Paddle-Impressed Pottery	Points to trade and cultural connections with the Gangetic region.

Recent Finding	Historical Significance
Four Terracotta Ring Wells	Evidences ancient habitation in areas now submerged beneath the sea.

GOLLALA GUDI TEMPLE, RAMAPPA TEMPLE & MONUMENTS OF NATIONAL IMPORTANCE

Context: The

Archaeological Survey of India (ASI) declared Telangana's Kakatiya-era Gollala Gudi Temple a Monument of National Importance.

Gollala Gudi Temple:

Located at Palampet village, Mulugu district, Telangana, close to the UNESCO-listed Ramappa Temple. Belongs to the Kakatiya period (12th–13th centuries CE); built in Trikutalaya style with an East-facing central mandapa surrounded by three garbhagrihas and intricate stone carvings.

Ramappa (Rudreswara) Temple:

Also in Palampet; built in 1213 AD by Recharla Rudra, a general of Kakatiya king Ganapati Deva. Presiding deity is Ramalingeswara Swamy. Complex includes Rudreswara, Kateshwara, and Kameshwara temples, Pakashala, Nandi Mandapa, and an inscription.

Monuments of National Importance:

Protected under the AMASR Act, 1958 and conserved by ASI (Ministry of Culture). Criteria: at least 100 years old with special historical, archaeological, or artistic importance.

Protected Zones & Constitution:

Prohibited Area (100 m from boundary; new construction generally banned) and Regulated Area (further 200 m; construction requires permission). Article 49 directs the State to protect such monuments.

THIRUKKURAL

Context:

The Indian Prime Minister gifted a Russian translation of the Thirukkural to the Russian President ahead of the BRICS Summit 2026.

Author & Classification:

Authored by classical Tamil poet-philosopher Thiruvalluvar (300 BCE–5th century CE); belongs to Patinenkilkanakku (Eighteen Minor Works). Translated into 60+ languages.

Structure:

Translates to 'sacred couplets'; comprises 1,330 seven-word couplets (kurals) arranged into 133 chapters (10 couplets per chapter).

Three Divisions: Aram (Virtue: ethics & morality), Porul (Polity/Wealth: governance, justice, taxation, agriculture, socio-economic life), and Inbam (Love: human relationships).

RAJGHAT EXCAVATIONS (ANCIENT VARANASI)

Context:

BHU opened 22 boxes holding 10,000+ artefacts from the 1957 Rajghat excavations and began genetic/bio-archaeological study of a ~1,000-year-old skeleton. (Re-examination, not a new excavation).

Location & Discovery:

North-eastern Varanasi, near the Ganga–Varuna confluence. Noticed in 1939 during Kashi Railway Station expansion; trial dig by ASI's Krishna Deva (1940); major digs (1957–1969) by BHU's A.K. Narain and T.N. Roy with ASI.

Antiquity:

Lowest layers yielded pre-Northern Black Polished Ware (pre-NBPW), dating earliest habitation to ~800 BCE with continuous occupation to the medieval period.

Key Findings:

Developed urban remains (brick structures, streets, wells, bathing tanks, paved courtyards); pottery, terracotta figurines, sculptures, coins, and copper/ivory/bone objects; seals bearing 'Varanasi' and official names, plus sealings depicting Greek deities.

Bio-Archaeological Study:

Examines a 1957-recovered human skeleton (~1,000 years old) to understand Middle Ganga Valley population history and ancient South Asian genetic relationships.

INDIA'S UNESCO TENTATIVE LIST: 5 NEW CULTURAL PROPOSALS

Context:

Five cultural heritage proposals (four in Madhya Pradesh and one India–South Africa transnational serial proposal) were added to India's UNESCO Tentative List, taking the total to 78.

About UNESCO Tentative List:

An inventory of cultural/natural properties with potential Outstanding Universal Value (OUV) that a country plans to nominate. Inclusion is a mandatory first step for World Heritage inscription.

A. Archaeological & Architectural Heritage (Madhya Pradesh)

Site (Madhya Pradesh)	Period	Key Highlights
Bagh Cave Paintings	4th–6th centuries CE	Nine rock-cut Buddhist caves along the Baghni River (southern slope of Vindhyan Range). Paintings show continuity with the Ajanta tradition plus regional features.
Temples of the Chambal Valley	8th–11th centuries CE	Bateshwar (200+ small shrines), Padavali, and Kakarmath. Built under Gurjara-Pratihara and Kachchhapaghata dynasties; trace Nagara temple evolution.
Udaigiri Caves	Late 4th–Early 5th c. CE	20 rock-cut caves under Gupta patronage. Key sculptures: Varaha relief (Cave 5) and Anantasayana Vishnu (Cave 13); also contain Shaiva and Jain elements.
Ginnorgarh Fort	Early 16th–Early 18th c.	Forested hill fort and palace complex of the Raj Gond rulers; major political-administrative centre known for extensive rainwater-harvesting systems.

B. Sites of Satyagraha (Serial Transnational Proposal: India & South Africa)

Site	Location	Historical Significance
Pietermaritzburg Railway Station	South Africa	Mahatma Gandhi was evicted from a first-class compartment here in 1893 due to racial discrimination.
Phoenix Settlement	South Africa	Gandhi's first ashram (1904); centre of community living, self-reliance, and publication of Indian Opinion.
Mahatma Gandhi Satyagraha Smarak	East Champaran, Bihar	Marks Gandhi's first Satyagraha in India (1917); features a 48-ft Chunar-stone pillar and Champaran museum.
Sabarmati Ashram	Ahmedabad, Gujarat	Gandhi's residence and freedom movement hub (1917–1930); starting point of the Dandi March (March 1930).
Mani Bhavan	Mumbai, Maharashtra	Served as Mahatma Gandhi's Mumbai base from 1917 to 1934.
Harijan Sevak Sangh	Delhi	Founded in 1932 after the Poona Pact; spearheaded Gandhi's campaign against untouchability.
Sevagram Ashram	Wardha, Maharashtra	Established in 1936 as a centre for simplicity, self-reliance, and rural development.

Site	Location	Historical Significance
Aga Khan Palace	Pune, Maharashtra	Quit India Movement detention centre where Gandhi, Kasturba Gandhi, and Mahadev Desai were held (1942–1944).
Gandhi Smriti	New Delhi	Mahatma Gandhi's final residence.

AWARDS & HONOURS IN NEWS

DADASAHEB PHALKE AWARD 2024

Context:

Veteran Kannada and Hindi cinema actor Anant Nag was honoured with the Dadasaheb Phalke Award for 2024.

About the Award:

India's highest cinema honour, presented annually at the National Film Awards by the Directorate of Film Festivals (Ministry of Information & Broadcasting).

History & Prize:

Instituted in 1969 to commemorate Dadasaheb Phalke's legacy (first recipient: Devika Rani). Comprises a Swarna Kamal (Golden Lotus) medallion, shawl, and cash prize.

COOL LEADERS AWARD & UNEP COOL COALITION

Context:

The UNEP-led Cool Coalition launched the inaugural Cool Leaders Award at the Global Cooling Pledge Assembly in Singapore.

Inaugural Winners:

Singapore (passive cooling & heat resilience), United Arab Emirates (district cooling & global climate-cooling policy), and Dong Mingzhu, Chairwoman of Gree Electric Appliances (ultra-efficient, low-carbon cooling like the Zero Carbon Source AC system).

UNEP Cool Coalition:

Global multi-stakeholder platform launched in 2019 at the UN Secretary-General's Climate Action Summit to tackle rising cooling demand and extreme heat.

Global Cooling Pledge:

Launched at COP28 (2023) to cut global cooling-related emissions by at least 68% by 2050 (vs. 2022). The Coalition acts as its Secretariat, supporting National Cooling Action Plans, building energy codes, and MEPS.

ARCHERY WORLD CUP FINAL GOLD (DHIRAJ BOMMADEVARA)

Context:

Dhiraj Bommadevara became the first Indian male recurve archer to win gold at the Archery World Cup Final, defeating Japan's Nakanishi Junya in Mexico.

Indian Milestones:

Ended a 16-year medal drought for Indian male recurve archers (last: Jayanta Talukdar's bronze in 2010). Dola Banerjee (women's individual, 2007) is the only other Indian World Cup Final gold medallist.

World Archery & Circuit:

The Archery World Cup features four seasonal stages followed by the World Cup Final. Governed by World Archery (founded 1931; 160+ member associations; HQ: Lausanne, Switzerland).

RAMON MAGSAYSAY AWARD 2026

Context:

Tommy Koh (Singapore), Bo Kyi (Myanmar), and Runa Khan (Bangladesh) won the 2026 Ramon Magsaysay Awards.

2026 Laureate	Key Contributions
Tommy Koh (Singapore)	Lawyer & diplomat honoured for international dialogue and rule of law; presided over the UN conference (150+ nations) that adopted UNCLOS in 1982.
Bo Kyi (Myanmar)	Spent seven years in prison for lifelong resistance against widespread human rights violations by Myanmar's military.
Runa Khan (Bangladesh)	Founded 'Friendship Bangladesh' (2002) to help marginalized communities tackle climate change, access education, empower women, build livelihoods, and secure social justice.

About the Award:

Established in 1957 (funded by the Rockefeller Brothers Fund, NYC) to honour former Philippine President Ramon Magsaysay's governance ideals. Widely regarded as Asia's counterpart to the Nobel Prize.

FAO 100 WOMEN HEROES AWARD (Z T LALRITHANGI)

Context:

Z T Lalrithangi (Lawngtlai district, Mizoram) was selected among the 'FAO 100 Women Heroes in Agrifood Systems and Rural Development'.

Recognition Details:

Part of the International Year of Women Farmers 2026; one of two Indian women chosen from 600+ nominees across 131 countries.

Contribution:

Recognised for transforming strawberry cultivation into a profitable rural livelihood; to be felicitated at the World Food Forum at FAO headquarters in Rome.

TENZING NORGAY NATIONAL ADVENTURE AWARDS (TNNAA) 2024

Context:

The Ministry of Youth Affairs and Sports announced the 2024 Tenzing Norgay National Adventure Awards across Land, Water, and Lifetime Achievement categories.

2024 Awardees:

Land Adventure: Baljeet Kaur and Skalzang Rigzin; Water Adventure: Rimo Saha; Lifetime Achievement: Shiv Prasad Chamoli. (Total 4 categories include Air Adventure).

Conferment & Prize:

Conferred by the President of India to honour endurance, risk-taking, teamwork, and decisive leadership; carries a statuette, certificate, and Rs. 15 lakh cash prize.

HISTORICAL PERSONALITIES IN NEWS

Personality & Occasion	Birthplace	Key Contributions, Works & Honours
Dr. Bhupen Hazarika (1926–2011) 100th Birth Anniversary	Sadiya, Assam	Singer, lyricist, poet, composer, and filmmaker known as Sudhakantha and Bard of the Brahmaputra. Songs (Bistirno Parore, Manuhe Manuhor Babe) championed humanism, social justice, and communal harmony. Independent MLA in Assam (1967–72). Dadasaheb Phalke Award (1992); Bharat Ratna (2019, posthumous).
Saratchandra Chattopadhyay (1876–1938) 150th Birth Anniversary (PM paid homage)	Debanandapur, Hooghly, West Bengal	Acclaimed Bengali novelist translated across Indian and foreign languages; highlighted poverty, social injustice, women's rights, and nationalism. Works: Devdas, Parineeta, Srikanta, Charitraheen, Palli Samaj, Sesh Prashna, and Pather Dabi (banned by British in 1927). Essays on women's emancipation: Narir Mulya & Swaraj Sadhonay Nari. Active in Non-Cooperation Movement; President of Howrah District Congress (1921). Jagattarini Gold Medal (1923); Hon. D.Litt., Dhaka Univ. (1936).
Acharya Vinoba Bhave (1895–1982) 131st Birth Anniversary	Gagode, Raigad, Maharashtra	Gandhian thinker, social reformer, and exponent of Sarvodaya; selected as 1st Individual Satyagrahi (1940). Launched Bhoodan Movement (Pochampally, Telangana, 1951), evolving into Gramdan. Coined 'Jai Jagat'. Works: Gita Pravachane, Swarajya Shastra. 1st Ramon Magsaysay Award for Community Leadership (1958); Bharat Ratna (1983, posthumous).
Maharani Avantibai Lodhi (1831–1858) 195th Birth Anniversary (Statue unveiled in Lucknow)	Mankehdi, Seoni, Madhya Pradesh	Queen of Ramgarh (married Raja Vikramaditya Singh Lodhi); became queen-regent during his illness/demise. Defied British East India Company's takeover under the Court of Wards. Mobilised local chiefs, tribal communities, and ~4,000 soldiers in the Mandla–Ramgarh region during the 1857 Revolt, defeating British officer Waddington at the Battle of Kheri. Embraced martyrdom with a sword in March 1858 rather than surrender.
Dr. Sarvepalli Radhakrishnan (1888–1975) 138th Birth Anniversary	Tiruttani, Tamil Nadu	Philosopher, teacher, and statesman; India's 1st Vice-President (1952–62) and 2nd President (1962–67). Ambassador to USSR, UNESCO representative, VC of Andhra Univ. & BHU, and Oxford professor. Works: Indian Philosophy, The Hindu View of Life, The Principal Upanishads, An Idealist View of Life. Bharat Ratna (1954); 5 September is observed as Teachers' Day.