



KERALA STATE CIVIL SERVICE ACADEMY



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SOVEREIGN GOLD BONDS

Budget clarified that capital gains tax exemption on sovereign gold bonds will not apply to investors who purchase them in the secondary market and hold them to maturity.

MAIN FEATURES OF THE SOVEREIGN GOLD BOND			
<p>ISSUANCE To be issued by Reserve Bank of India on behalf of the Government</p>	<p>TAXATION Interest on the bonds shall be taxable as per the provision of Income Tax Act, 1961 (43 of 1961). Physical gold rules apply to capital gains tax too</p>	<p>SALES CHANNEL Bonds will be sold through banks and designated Post Offices, as may be notified, either directly or through agents</p>	
<p>ELIGIBILITY The bonds will be restricted for sale to resident Indian entities including individuals, HUFs, trusts, universities, charitable institutions</p>	<p>DENOMINATION The bonds will be denominated in multiples of grams of gold with a basic unit of 1 gram</p>	<p>MAXIMUM LIMIT Not more than 500 grams per person per fiscal year (April-March). A self-declaration to this effect will be obtained</p>	
<p>TENOR The tenor of the bond will be for a period of 8 years with exit option from 5th year to be exercised on the interest payment dates</p>	<p>MINIMUM SIZE Minimum permissible investment will be 2 units (i.e. 2 grams of gold)</p>		

- **Term:** The term of the bond will be for a period of 8 years, with an exit option in the 5th, 6th, and 7th years, to be exercised on the interest payment dates.
- **Selling:** Bonds are sold through offices or branches of Nationalised Banks, Scheduled Private Banks, Scheduled Foreign Banks, designated Post Offices, Stock Holding Corporation of India Ltd. (SHCIL), and the authorised stock exchanges either directly or through their agents.

Advantages Of Sovereign Gold Bond

- These bonds can also be used as collateral for loans.
- The bond payment can be made with cash up to a maximum of Rs.20,000 or demand draft, cheque or through e-banking.
- These bonds are eligible to be converted into DEMAT form.
- Gold bonds are a form of security as they are issued in the form of the Government of India stock.
- Interest earned on the gold bonds is taxable as per the provisions of the Income Tax Act, 1961.
- Gold bonds eliminate the costs and risks of storage.

About Sovereign Gold Bonds:

- **Nature:** These bonds are government securities denominated in grams of gold.
- **Launch:** The Sovereign Gold Bond (SGB) Scheme was first launched by the Government of India (GOI) on October 30, 2015.
 - **Significance:** They are substitutes for holding physical gold. Investors have to pay the issue price, and the bonds will be redeemed upon maturity.
 - **Issuance:** The bond is issued by the Reserve Bank on behalf of the GOI.
- **Eligibility:** The bonds will be restricted for sale to resident Indian entities, including individuals, Hindu Undivided Family (HUF), Trusts, Universities and Charitable Institutions.
- **Investment limits:** The bonds are issued in denominations of one gram of gold and in multiples thereof. The minimum investment in the bond shall be one gram, with a maximum subscription limit of 4 kg for individuals, 4 kg for HUFs, and 20 kg for trusts.

MAHATMA GANDHI GRAM SWARAJ INITIATIVE

In the Union Budget, Finance Minister announced the launch of the Mahatma Gandhi Gram Swaraj Initiative aimed at strengthening Khadi, handloom, and handicrafts.

About Mahatma Gandhi Gram Swaraj Initiative (MGGSI):

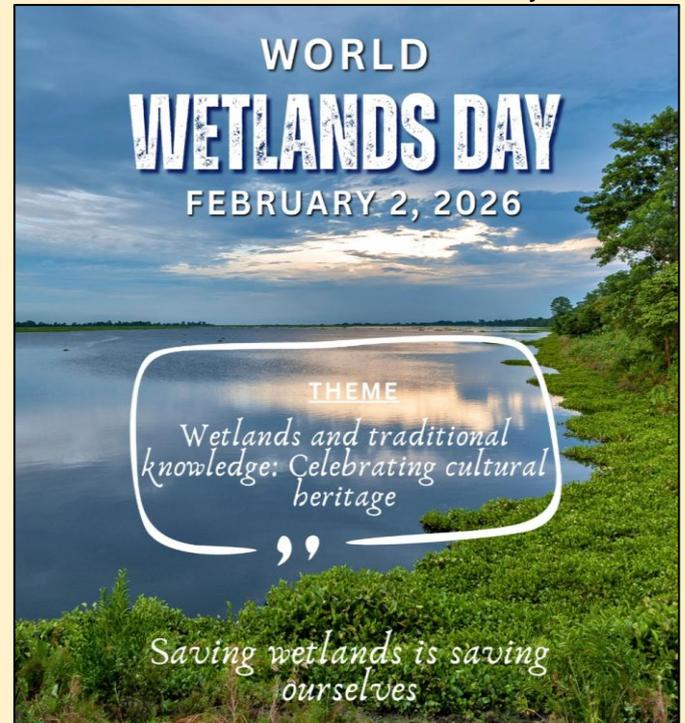
- **Launch:** It was announced in the Union Budget 2026-27 to strengthen India's traditional craft sectors.
- **Objective:** It is aimed at making traditional rural industries more competitive while ensuring sustainable livelihoods for artisans and weavers.



- **Focus areas:** It is a major initiative to strengthen the **khadi, handloom, and handicrafts sector** by improving global market access, branding, and market linkages.
- **Beneficiaries:** The programme mainly targets **weavers, village industries, beneficiaries of the One District One Product (ODOP) initiative**, and rural youth, and MGGSI aims to address structural challenges.
- **Preservation of traditional craftsmanship:** MGGSI encourages artisans to **adopt modern production methods, while preserving traditional craftsmanship**. The initiative also focuses on improving market access by better branding and marketing to enable artisans to reach organised retail, export markets, and online platforms.
- **Atmanirbhar Bharat:** It aligns with the “Vocal for Local” philosophy and efforts to strengthen micro, small, and medium enterprises (MSMEs). By reinforcing traditional industries, the initiative seeks to generate sustainable employment, and reduce rural distress, thereby aligning with the broader vision of Atmanirbhar Bharat.
- **Constitutional link:** While the 73rd Constitutional Amendment Act 1992 provided the political framework for Panchayati Raj, schemes like MGGSI aim to provide the economic foundation necessary for true self-rule.

WORLD WETLANDS DAY

Marking World Wetlands Day, the Department of Posts released a special postal cover featuring the blackbuck found in Point Calimere Wildlife and Bird Sanctuary.



About World Wetlands Day:

- **Date:** It is celebrated every year on 2 February.
- **Origin:** It marks the anniversary of the **Ramsar Convention**, signed in Ramsar, Iran, on 2 February 1971.
- **Other names:** The agreement is also known as the **Convention on Wetlands of International Importance**.
 - **Focus:** It emphasizes the connection between local communities and wetlands, highlighting how traditional practices ensure sustainable use.
- **UN recognition:** It was officially recognized by the United Nations General Assembly in 2021 and has been a **United Nations International Day since 2022**.
- **Uniqueness:** It is one of the oldest modern international environmental agreements and the only one **focused entirely on a single ecosystem-wetlands**.

- **Parties:** There are **172 Contracting Parties** to the convention and over 2500 listed Ramsar wetlands worldwide. Each year, the **Convention Secretariat leads the World Wetlands Day campaign**, with participation from governments, conservation organisations, businesses, NGOs, media, youth groups, and communities worldwide.
- **2026 Theme:** The global theme for 2026, **'Wetlands and Traditional Knowledge: Celebrating Cultural Heritage'**, highlights the role of indigenous and local communities in conserving and managing wetlands.
- **India's Status:**
- **Signatory:** India joined the convention on February 1, **1982**.
 - **Leading states:** **Tamil Nadu** has the most Ramsar sites (20), followed by Uttar Pradesh (11 including the 2026 addition).
 - **Largest and smallest wetland:** **Sundarbans (West Bengal)** is the largest wetland, while **Renuka Wetland (Himachal Pradesh)** is the smallest.
- **Count:** India's Ramsar site count has reached **98, the highest in Asia**.

India's wetlands, central to water security, biodiversity and disaster resilience, are rapidly declining despite legal protection. World Wetlands Day 2026 underscores the urgency of integrating traditional knowledge with science-based governance to safeguard these fragile ecosystems.

Current Status of Wetlands in India

- **Rapid Decline:** Nearly **40% of India's wetlands have disappeared** in the last three decades, while about **50% of the remaining wetlands are degraded**, reducing their ecological and economic value.
- **Ecological & Economic Role:** Wetlands support fisheries, agriculture, groundwater recharge, flood control and livelihoods, especially for rural and coastal communities, acting as both ecological buffers and local economic assets.

- **Global Commitments:** India has designated **98 Ramsar sites**, reflecting international recognition, but designation alone has not ensured on-ground protection or restoration.
- **Urban Wetland Stress:** Urban wetlands are overburdened with sewage inflows, stormwater, solid waste and encroachments, often without legal buffers or hydrological protection.
- **Climate Vulnerability:** Coastal wetlands such as mangroves face a dual threat from **sea-level rise and development pressure**, limiting their ability to migrate or regenerate.

Key Issues and Challenges

- **Weak Implementation:** Although the **Wetlands (Conservation and Management) Rules, 2017** exist, poor notification, demarcation and enforcement have diluted their impact.
- **Encroachment & Land Conversion:** Infrastructure, real estate and road projects have replaced wetlands, treating them as "spare land" rather than active ecological systems.
- **Hydrological Disruption:** Dams, embankments, sand mining and groundwater over-extraction alter natural water flows, degrading wetland functions, especially floodplains and riparian zones.
- **Pollution Load:** Untreated sewage, industrial effluents and agricultural runoff cause eutrophication, biodiversity loss and public health risks.
- **Institutional Capacity Gaps:** State Wetland Authorities are often underfunded and understaffed, lacking expertise in hydrology, ecology, GIS and community engagement.

Government Efforts So Far

- **Regulatory Framework:** The **Wetlands Rules, 2017** mandate identification, notification and restriction of harmful activities in wetlands.

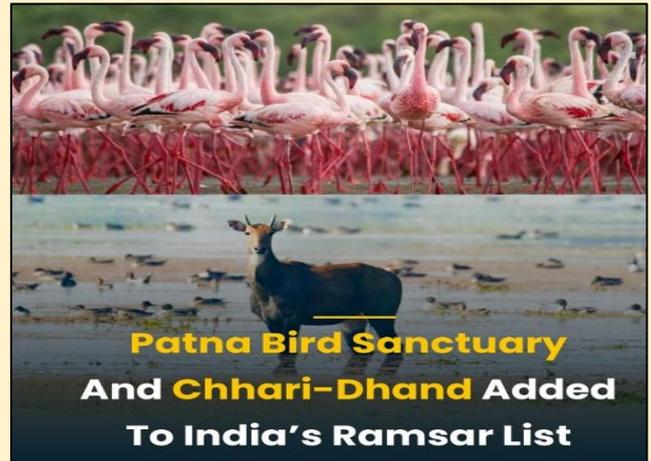
- **NPCA Guidelines:** The **National Plan for Conservation of Aquatic Ecosystems (NPCA)** promotes structured planning, monitoring and outcome-based wetland management.
- **CRZ Regulations:** The **Coastal Regulation Zone framework** seeks to protect coastal wetlands like mangroves and lagoons from unregulated development.
- **Technology Use:** Increasing use of **remote sensing, GIS and satellite monitoring** to track encroachment, water spread and vegetation change.
- **Community-linked Models:** Pilot projects by research institutions and NGOs demonstrate participatory wetland management linked to local livelihoods.

Way Forward

- **From Projects to Programmes:** Shift from isolated beautification projects to **long-term, basin-level wetland programmes** focused on ecological functionality.
- **Boundary Notification & Transparency:** Ensure clear demarcation, public maps, grievance redress mechanisms and community-led ground verification of wetland boundaries.
- **Treat Wastewater at Source:** Urban wetlands must receive **only treated effluents**; wetlands cannot substitute for sewage treatment plants.
- **Catchment & Connectivity Protection:** Manage wetlands as part of entire watersheds by restoring feeder channels and preventing physical blockages.
- **Nature-based Infrastructure:** Recognise wetlands as **disaster risk reduction assets**, comparable to grey infrastructure, especially for floods and cyclones.
- **Capacity Building:** Launch a national training mission for wetland managers in hydrology, restoration ecology, GIS, environmental law and participatory governance.

Wetlands are not wastelands but national public goods vital for India's water security, climate resilience and livelihoods. Aligning science, policy and community stewardship – while scaling from cosmetic interventions to ecosystem-based governance – is essential to restore wetlands as living, working systems for a sustainable future.

NEWLY ADDED WETLANDS



Recently, Union Minister for Environment, Forest and Climate Change announced that Patna Bird Sanctuary and Chhari-Dhand have been included in the Ramsar sites list.

About Patna Bird Sanctuary:

- **Location:** It is located in the state of **Uttar Pradesh**.
 - **Composition:** It consists of **freshwater marshes, woodlands and grasslands**, and is surrounded by agricultural landscapes.
 - **Area:** It is the **smallest bird sanctuary in Uttar Pradesh**, covering an area of approximately **1.09 sq. km (108 hectares)**.
- **Status:** Established in 1991, it is also designated as an **Important Bird and Biodiversity Area (IBA)** by **BirdLife International**.
- **Wetland type:** It is a natural, freshwater, **rain-fed wetland (shallow depression)** characteristic of the **Gangetic plains**.

- **Cultural significance:** The sanctuary **houses an ancient Shiva temple**, and the local religious sentiment against hunting has contributed to the “tameness” of the birds found there.
- **Flora and fauna:** It consists of **178 bird species and 252 plant species**.

About Chhari-Dhand Wetland:

- **Location:** It is located in **Kutch, Gujarat**.
- **Nature:** It is a **seasonal saline wetland** situated between the famous Banni grasslands and salt flats of Kutch.
- **Nomenclature:** “Chhari” means **saline** and “Dhand” means a **shallow lake** in the local language.
- **Type:** It becomes **swampy during the monsoon**, fed by north-flowing rivers and runoff from surrounding hills.
- **Conservation status:** It was declared **Gujarat’s first Conservation Reserve** in 2008. It is designated as a **Ramsar Site** in 2026, making it Gujarat’s 5th such site (alongside Nal Sarovar, Thol, Khijdia, and Vadhwana).
- **Fauna:** It supports species such as **critically endangered sociable lapwing, the vulnerable common pochard**, and, notably, common cranes (*Grus grus*) annually.
- **Flora:** It features **unique arid-adapted plants like the Indian gum tragacanth** and the critically endangered **Indian bdellium-tree (*Commiphora wightii*)**.

About Devnimori Relics of Lord Buddha:

- **Location:** The Devnimori Relics originate from the Devnimori archaeological site, located near Shamlaji **in the Aravalli district of Gujarat**.
- **Discovery:** It was first explored in 1957 by eminent archaeologist **Prof. S. N. Chowdhry**.
 - **Timeline:** The site dates back to the **3rd to 4th century CE** (early centuries of the Common Era).
- **Significance:** The excavations revealed important Buddhist structures and relics that stand **testimony to the flourishing of Buddhism in western India**.
- **Relic casket:** The relic casket found within Devnimori Stupa at a height of 24 feet from the base, **made out of green schist**.
 - **Inscription:** It is inscribed in **Brahmi Script and Sanskrit language**, it reads. “**dashabala sharira nilay**” - the abode of the Buddha’s bodily relic. It holds a copper box having organic matter with holy ashes, with silk cloth and beads.
- **Contents:** The casket contained a **copper box**, which held a gold-coated silver-copper bottle containing **sacred ashes, silk cloth, and beads**.
 - **Architecture:** The site featured a **large Sharirika Stupa** (housing physical remains) and a **Vihara** (monastery).
 - **Art style:** The terracotta Buddha sculptures found here show a **strong Gandhara influence**, distinct from the Mathura or Gupta styles.
 - **Spiritual diplomacy:** This exposition is part of **India’s “soft power”** initiative to strengthen cultural ties with Buddhist nations.
- **Other relic expositions:** Similar diplomatic outreach has involved the **Kapilavastu Relics being sent to Mongolia and Thailand**.

DEVNIMORI RELICS



India is set to undertake a profound gesture of spiritual outreach & cultural diplomacy through the exposition of the sacred Devnimori Relics of Lord Buddha in Sri Lanka.

PENNAIYAR RIVER

The Supreme Court recently directed the Centre to constitute a tribunal to adjudicate dispute between Tamil Nadu and Karnataka over the sharing of Pennaiyar River water.



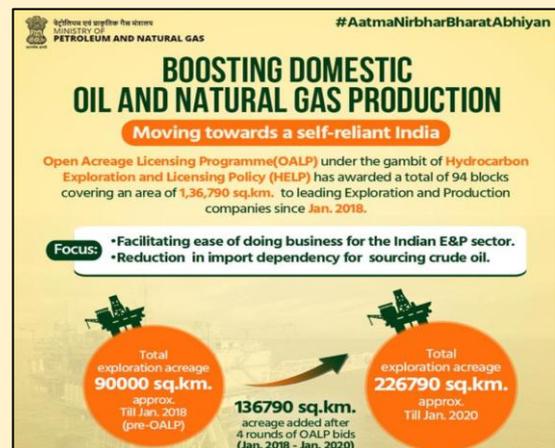
About Pennaiyar River:

- **Location:** The Pennaiyar River is a major river in southern India flowing through **Tamil Nadu and Karnataka.**
 - **Other names:** It is also known as the **South Pennar River, Dakshina Pinakini** in Kannada, and **Thenpennai, Ponnaiyar, or Pennaiyar** in Tamil.
 - **Origin:** It rises in the Nandi Hills of the **Chikkaballapura district in Karnataka.**
 - **Course:** It flows southward for 80 km through **Karnataka to northwestern Tamil Nadu**, where it turns and flows southeastward to **enter the Bay of Bengal at Cuddalore.**
 - **Significance:** It is the **second longest river in Tamil Nadu**, stretching 497 km in length. It is also the second largest interstate east-flowing river basin, situated between the Pennar and Cauvery basins.
- **Boundaries:** The Basin is bounded on the northwest and south by various ranges of the **Eastern Ghats, like the Velikonda Range, the Nagari hills, the Javadu hills, the Shevaroy hills, and the Kalrayan hills,** and in the east by the **Bay of Bengal.**
- **Tributaries:** Key tributaries include the **Markandeyanadhi** (the primary point of current dispute), **Kambainallur, Pambar, Chinnar, and Vaniar.**

- **Dams:** Notable structures include the **Sathanur Dam** (the largest), **Krishnagiri Dam, and Kelavarapalli Dam.**
- **Concerns:** Heavy rains at the river's source cause **sudden, but short-lived, floods.** The river is extensively dammed for irrigation, especially in Tamil Nadu.
- **Dispute:** Tamil Nadu claims that **Karnataka's construction of check dams and diversion structures** would reduce the water flow into their state, affecting their irrigation and drinking water needs.

OPEN ACREAGE LICENSING POLICY (OALP)

Oil India undertook a seismic study of the blocks it was awarded during the ninth round of the Open Acreage Licensing Policy to chart a bidding strategy for the tenth round.



About Open Acreage Licensing Policy (OALP):

- **Launch:** It was introduced by the Government of India (GoI) as a **part of the Hydrocarbon Exploration and Licensing Policy (HELP)** on March 30, 2016. **HELP replaced the New Exploration and Licensing Policy (NELP) regime**, which was in existence for over 18 years.
- **Nature:** OALP is a major reform that **changed how companies can apply for oil & gas exploration blocks in India.** Under the OALP, the company has the option to undertake prospecting for fuels in areas which are not notified by the GoI.

PECHORA MISSILE SYSTEM

Bengaluru-based Alpha Design Technologies Ltd (ADTL) has completed a major upgrade of the Indian Air Force's Pechora, a surface-to air missile (SAM) system.



About Pechora Missile System:

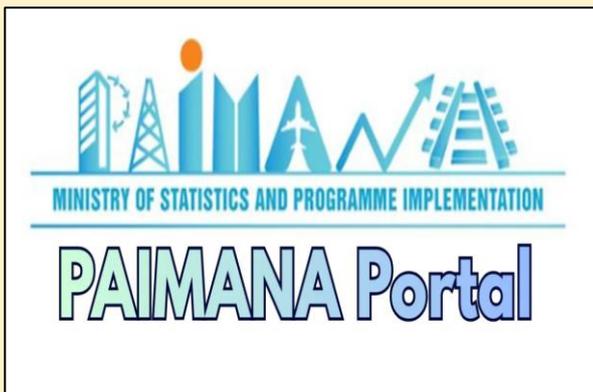
- **Official name:** The Pechora missile system is officially known as the **S-125 Neva/Pechora**.
- **Nature:** It is a Soviet-origin, **medium-range surface-to-air missile (SAM) system designed** to intercept low- to medium-altitude targets.
- **Induction:** It has been a mainstay of India's air defence network **since the 1970s**.
- **Composition:** The system consists of a radar-guided **missile launcher and a fire control unit**, typically employing the V-600 missile.
- **Radar:** It uses the **4R90 Yatagan radar**, equipped with five parabolic antennas, to detect, track, and lock onto targets. Once a threat is identified, the system can launch missiles to intercept and destroy it mid-air.
- **Effectiveness:** It is particularly effective **against slow-moving or low-flying targets**, making it well-suited for countering drones and cruise missiles.
- **Operational efficiency:** It can **operate independently or as part of a larger, integrated air defence network**, and is capable of functioning even in environments with heavy electronic jamming.
- **Range:** The Pechora system has an operational **firing range of up to 30-35.4 km**, with some upgraded versions reaching 35.4 km.

- **Difference from previous system:** **Until the OALP** was introduced, exploration for hydrocarbons was **allowed only in the case of areas covered by the tenders** issued by the Government of India (GoI).
- **Process:**
 - The OALP gives a company the opportunity to **prospect for fuels** in any area where the technical feasibility study indicates the presence of hydrocarbons.
 - Once the feasibility study shows the presence of hydrocarbons, the company can **proceed with the exploration after obtaining permission** from the Directorate General of Hydrocarbons (DGH).
- If multiple requests for sanction are received for the same area, the DGH will make an **allotment by conducting an auction**.
 - **National Data Repository(NDR):** The OALP regime also **allows companies access to seismic data at the National Data Repository (NDR)**. A crucial pillar of OALP, the NDR is a centralized online database providing geological and seismic data, allowing investors to make informed decisions before bidding.
- **Significance:**
 - **Quick exploration:** Under the OALP the exploration can be made without waiting for an announcement from the GoI that an area is available for exploration.
 - **Ease of doing business:** By removing "red-tapism" and administrative discretion, it aims to attract global energy giants.
 - **Energy security:** The policy supports India's goal of reducing crude oil import dependency (historically targeted at a 10% reduction) by boosting domestic production.

- **Altitude:** It can engage targets flying at altitudes from as low as 20 meters **up to 20-25 km**, making it versatile for both low and medium-altitude threats.
- **Detection:** The system's radar can **detect targets up to 100 km away**, providing early warning and engagement capability.
- **Accuracy:** The Pechora boasts a **high kill probability of around 92%** and can engage up to two targets simultaneously at speeds up to 900 m/s.

PAIMANA PORTAL

MoSPI has operationalised a new web-based portal, PAIMANA portal for the mandated monitoring of Central Sector Infrastructure Projects worth ₹150 crore and above.



About PAIMANA Portal:

- **Full Form:** PAIMANA stands for **Project Assessment, Infrastructure Monitoring & Analytics for Nation-building**.
 - **Nodal ministry:** It is a flagship initiative of the **Ministry of Statistics and Programme Implementation (MoSPI)**.
 - **Objective:** It functions as a **centralised national repository of infrastructure projects, enabling web-generated analytical reports and enhancing data accuracy, and operational efficiency**.
 - **Integration:** It is integrated with **DPIIT's Integrated Project Monitoring Portal (IPMP/IIG-PMG)** through APIs.

- **Centralized project monitoring:** It serves as a centralized project monitoring system, providing a **single-window interface for ministries, departments, and implementing agencies** to upload, track, and review project information.
- **Real-time dashboards:** It features real-time dashboards with drill-down capabilities, enabling users to **monitor progress across sectors, states, and timelines**.
- **Advanced data analytics:** It includes **role-based user access, interactive dashboards, reporting and query modules**, and review cases for identification of data gaps.

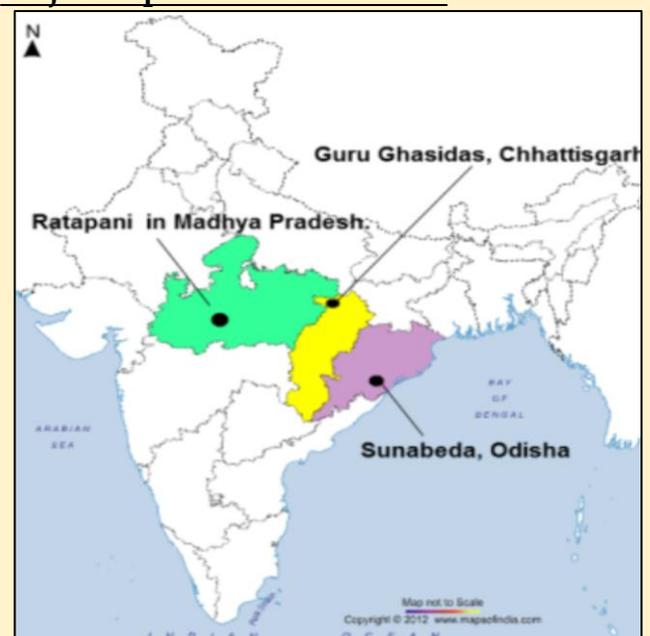
SUNABEDA

Sunabeda Wildlife Sanctuary in Odisha is emerging as a promising habitat for leopards, with an estimated population of over 70 individuals, according to forest officials.

About Sunabeda Wildlife Sanctuary:

- **Location:** It is located in the Nuapada district of **Odisha**.
- **Establishment:** It was declared a sanctuary **in 1983**.
- **Tiger reserve:** The sanctuary has received **"in-principle approval" from the NTCA** to become a Tiger Reserve.

Major leopard havens in India



- **Connectivity:** Sunabeda is part of the Deccan Peninsula biogeographic zone. It serves as a corridor **connecting Satkosia Gorge Wildlife Sanctuary with Sitanadi and Udanti sanctuaries** in Chhattisgarh.
- **Terrain:** The sanctuary harbours a great diversity of wildlife habitats, with a **vast plateau, canyons, and 11 waterfalls**.
 - **Rivers:** It also forms the catchment area of the **Jonk River (tributary of the Mahanadi River)**, over which a dam has been constructed to facilitate irrigation.
- **Vegetation:** The important vegetation of this sanctuary comprises **dry deciduous tropical forests**.
 - **Flora:** **Bija, Teak, Sisoo, Asan, Dharua, Mahul, Char, Sandalwood, Sidha, etc.**
 - **Fauna:** It is an ideal habitat for the **Barasingha (swamp deer)**. Other important animals found are tigers, Leopards, hyenas, Barking Deer, Chital, Gaur, Sambar, Sloth Bear, Hill Myna, etc.
- **Tribes:** The area is inhabited by tribal communities like the **Gond and Paharia tribes**.

US Trade Policy Under Trump

- Donald Trump's administration prioritizes resetting America's economic relationships worldwide, often favoring the US in trade deals.
- Historically, post-World War II, the US favored economic partnerships that also benefited its trade partners to promote global peace and counter communism.
- Trump's strategy involves leveraging the US's economic and military power to restructure trade agreements.

Impact of Trade Deals

- The US-EU trade deal serves as a prime example of US dominance in trade negotiations, with the EU facing significant tariffs and committing to substantial US imports and investments.
- Similar one-sided agreements have been signed between the US and other allies like the UK, Japan, and South Korea.

India's Economic Context

- Despite a 50% tariff on Indian exports, India's total exports have risen by 4.4% year-on-year, with a 9.8% increase in exports to the US between April and December 2025.
- India's capital inflows are declining. The current account deficit stands at 1.3% of GDP, comparable to countries like Canada and Australia.
- Gross foreign direct investment (FDI) fell by 2% in 2024, and net FDI reached only \$5.6 billion from April to November 2025.
- Foreign portfolio inflows (FPI) witnessed a negative trend, with a decline of \$3.9 billion from April to December 2026.

INDIA-UNITED STATES TRADE DEAL

The India-United States (US) trade deal, which aims for an interim agreement, faces criticism from various sectors in India. The Congress party has labeled it a surrender, and a farmers' organization has called for protests, highlighting concerns about the deal being more favorable to the US.



Strategic Importance of the Trade Deal

- The absence of a trade deal might continue to hamper capital flows and potentially affect service exports, defense collaboration, technology transfers, and the broader strategic partnership with the US.

- The deal is expected to shift the US's stance towards India from hostile to neutral, benefiting the Indian economy.
- Compromises in the deal include reducing oil imports from Russia and increasing US imports to \$100 billion annually for the next five years.

The trade deal is not just about economic exchanges but involves strategic implications, shifting relations from potential hostility to neutrality, which is crucial for sustaining India's economic performance in the long term.

How are Indian Farmers Protected under the India - US Interim Trade Agreement?

- **Excluded Items:** India maintains a **trade surplus of USD 1.3 billion in agricultural trade with the US**, with exports of USD 3.4 billion and imports of USD 2.1 billion in 2024.
 - The US will apply zero additional duty on Indian exports worth USD 1.36 billion.
 - Additionally, a **strict "negative list" has been maintained**. No tariff relief has been granted to the US on sensitive agricultural products including:
 - Meat, poultry, and dairy.
 - Staple grains (wheat, rice, maize, millets).
 - Fruits and vegetables (bananas, strawberries, cherries, citrus, green peas).
 - Other commodities like soybean, sugar, oilseeds, ethanol, and tobacco.
- **GM Ban Continues:** India has firmly refused to open its doors to **Genetically Modified (GM)** items, specifically blocking American GM corn and soybean.
- **Boost to Indian Farmers:** India has secured duty-free entry into the US market for several sectors, with **duties dropping from 50% to 0% in many cases**.

- **Agriculture Exports:** Zero-duty access has been granted for Indian spices, tea, coffee, cashew nuts, Brazil nuts, and coconuts (including oil and copra).
- **Fruits and Vegetables:** Exports of mangoes, guavas, papayas, avocados, bananas, and mushrooms will benefit from tariff elimination.
- **Processed Goods:** Select processed foods and cereals like barley will also enter duty-free, encouraging value addition within India before export.
- **Animal Feed Market:** With India's domestic production of maize and soybean unable to keep pace with the **rising demand from the poultry and livestock sectors**, the deal opens specific windows for **feed imports without compromising the ban on GM grains**.
 - The US can now **export Sorghum (Red Sorghum) to India**. It is seen as a vital non-GM alternative to corn for the Indian poultry industry.
 - **Distillers Dried Grains with Solubles (DDGS)** is a by-product of ethanol production. Although it may be derived from GM corn, India is allowing it **only as a processed feed input**.
 - It supports the **protein requirements** of livestock and poultry without opening the door to GM grains.



Calibrated Market Opening with Strong Safeguards

- For items that were opened, India used safeguards to prevent dumping:
 - **Tariff Rate Quotas (TRQs):** Applied to items like apples and almonds, where only a specific quantity can be imported at lower rates.
 - **Phased Rollouts:** Some tariffs will be reduced over a period (up to 10 years) to allow domestic industries to adjust.
 - **Minimum Import Price (MIP):** Imposed on wines and spirits to ensure only high-value premium products enter, protecting the domestic mass-market industry.

India's Feed Market

- **Current Output:** According to the United States Department of Agriculture (USDA), India's annual maize production is expected to be 43 million tonnes (mt) in 2025-26, with about 24 mt allocated specifically for feed use. Soybean output stands at approximately 12.5 mt.
- **Compound Feed Industry:** The total production of compound feed is pegged at 60 mt, comprising 40 mt for poultry, 18 mt for cattle, and 2 mt for aqua/shrimp feed.
- **Domestic DDGS:** Grain-based ethanol distilleries in India are currently supplying over 3 mt of DDGS to the feed industry, with a forecast of 4.2 mt in 2025-26.
- **Yield Challenges:** Domestic production struggles with low yields; maize yields average 3.75 tonnes/hectare (vs 11.25 in the U.S.), and soybean yields are below 1 tonne/hectare (vs 3.4 in the U.S.).

Demand Drivers

- **Drivers:** Rising incomes, urbanization, and a population expected to reach 1.5 billion by 2050 are driving a dietary shift toward protein (milk, eggs, meat), thereby increasing the demand for animal feed.
- **Consumption Projections (USDA Report):**
 - **Maize:** From 34.7 mt (2022-23) to 93 mt (2050) under a moderate growth scenario, or up to 200.2 mt under a rapid growth scenario.

- **Soybean Meal:** From 6.2 mt (2022-23) to 28.3 mt (2050) under moderate growth, or up to 68.3 mt under rapid growth.

- **Feed Composition:** Maize is a critical component, making up 55-65% of broiler feed, 50-60% of egg-layer feed, and 15-20% of cattle feed.

US Role

- With India's production unable to keep pace with demand, the U.S. is positioned to fill the deficit. The USDA projects India could need to import up to 46 mt of maize and 19 mt of soybean meal by 2040 under rapid growth scenarios.

INDIA'S SPACE AMBITIONS

India's space sector is at an inflection point. Post-pandemic disruptions have eased, global space markets are rapidly commercialising, and India has formally opened its space ecosystem to private players since 2020.

Budget 2026-27 was therefore expected to move beyond stabilising the public space programme and actively enable a globally competitive private space industry.



Current Status: What the Budget Signals

- **Budgetary stabilisation of the public programme:** Space allocations in 2026-27 exceed the pre-pandemic peak (₹13,017 crore in 2019-20) by ~5.3%, signalling operational normalisation for ISRO and continuity for missions like Gaganyaan and planetary exploration.

- **Ecosystem scale still modest:** Including internal resource mobilisation by **NewSpace India Limited**, total ecosystem spending is ~₹15,000 crore – small relative to ambitions of capturing **10% of the global space economy by 2030** (from ~3% today).
- **Public-sector centric fiscal design:** The Budget largely channels funds to ISRO and administrative support for **IN-SPACe**, reinforcing a state-led rather than industry-facilitated growth model.

Key Structural Gaps Highlighted by Industry

- **No Production Linked Incentive (PLI) for space manufacturing:** Despite success of PLIs in electronics, Budget 2026–27 ignores demands for incentivising space-grade components, where costs are high, volumes low, and learning curves steep.
- **GST-induced liquidity trap:** Space firms pay ~18% GST on imported inputs and raw materials, but final outputs (launch services/satellites) are often exempt, leading to **non-refundable input taxes**. This creates a hidden manufacturing tax, making “Make in India” space hardware costlier than imports.
- **Absence of ‘critical infrastructure’ status:** Without this tag, private players cannot access long-term, low-cost institutional finance. Industry estimates suggest this raises cost of capital by **2–3 percentage points**, fatal in a sector with long gestation and high fixed costs.
- **The ‘death valley’ remains unaddressed:** The gap between R&D and first commercial revenue persists. While a ₹1,000 crore space VC fund exists (₹150 crore earmarked so far), **equity financing alone cannot substitute fiscal support**, tax credits, or R&D grants in deep-tech sectors.

Implications for India’s Space Ambitions

- **Private firms risk remaining subcontractors** to ISRO rather than IP-owning innovators, limiting breakthroughs in reusable launch systems, satellite IoT, and downstream applications.
- **Global competitiveness erodes**, as U.S. and European firms access cheaper capital, tax incentives, and infrastructure support.
- **Brain drain risks rise**, with high-skilled engineers migrating to ecosystems that reward risk-taking and innovation.

Way Forward: What Budget Strategy Must Evolve Into

- **Shift from fund-provider to market-facilitator:** Allocate meaningful scheme-based funds to IN-SPACe (₹1,000 crore+), enabling demand creation for private launch vehicles, satellite platforms, and payloads.
- **GST zero-rating for space manufacturing:** Treat space outputs like exports to allow full input tax refunds and ease liquidity stress.
- **Grant ‘critical infrastructure’ status:** Enable access to long-tenure, low-cost finance for launch pads, ground stations, and telemetry networks.
- **Blend fiscal tools with venture capital:** Introduce time-bound tax holidays, R&D tax credits, and mission-mode grants to complement the VC fund and bridge the innovation “death valley”.

Budget 2026–27 stabilises India’s public space programme but falls short of catalysing a private-led space economy. Liberalisation without fiscal restructuring risks perpetuating a state-dominated, low-innovation equilibrium. For India to move from a launch-capable nation to a **space industrial power**, future budgets must align rhetoric on privatisation with decisive structural reforms that lower risk, cost, and uncertainty for private innovators.

INTERNATIONAL BIG CAT ALLIANCE

India will organise the world’s first international summit dedicated to the conservation of big cats in 2026, Union Finance Minister Nirmala Sitharaman announced while presenting the Union Budget 2026 in Parliament. The announcement underlines India’s growing leadership in global wildlife conservation and environmental diplomacy.

Global Big Cats Summit Announcement

During her Budget speech, Sitharaman said the International Big Cat Alliance will organise the inaugural Big Cats Summit this year.

The summit is expected to bring together Heads of State, ministers, and senior officials from 95 big cat range countries. The focus will be on collective conservation strategies, habitat protection, and coordinated action to address threats such as habitat loss, poaching, and climate change.

What Are Big Cats?

The term ‘big cat’ commonly refers to large members of the family Felidae, particularly those belonging to the genus Panthera. These include the tiger, lion, leopard, jaguar, and snow leopard, all of which are capable of roaring.

While puma and cheetah do not belong to Panthera, they are often included in broader classifications of big cats due to their size and ecological role. Big cats are considered flagship and umbrella species, meaning their conservation also protects entire ecosystems and numerous other species.

- The International Big Cat Alliance became operational in January 2025.
- India will host the first-ever global summit on big cats in 2026.
- Big cats are classified as flagship and keystone species.
- Members of genus Panthera are capable of roaring.

India’s Conservation Legacy and Global Significance

The Indian subcontinent has historically been home to species such as the Bengal tiger, Asiatic lion, Indian leopard, snow leopard, and the Asiatic cheetah, which was declared extinct in 1952. In recent years, India has also undertaken cheetah reintroduction efforts. By hosting the Big Cats Summit, India seeks to strengthen transboundary cooperation for species such as the snow leopard in Inner Asia and tigers across South and Southeast Asia, positioning conservation as a shared global responsibility rather than a national concern.

Species	Scientific Name	IUCN Red List	CITES	Indian Wildlife (Protection) Act, 1972
Tigers	<i>Panthera tigris</i>	Endangered	Appendix-I	Schedule-I
Lions	<i>Panthera leo</i>	Vulnerable	Appendix-I	Schedule-I
Leopards	<i>Panthera pardus</i>	Vulnerable	Appendix-I	Schedule-I
Snow Leopards	<i>Panthera uncia</i>	Vulnerable	Appendix-I	Schedule-I
Pumas	<i>Puma concolor</i>	Least Concerned	Appendix II (P. c. oostaricensis and cougar: Appendix-I)	NA
Jaguars	<i>Panthera onca</i>	Near Threatened	Appendix-I	NA
Cheetahs	<i>Acinonyx jubatus</i>	Vulnerable	Appendix-I	Schedule-I

Role of the International Big Cat Alliance

The International Big Cat Alliance was launched by Prime Minister Narendra Modi on April 9, 2023. It formally came into force on January 23, 2025, and has since become a treaty-based intergovernmental organisation with international legal status.

The Alliance aims to promote cooperation among countries that host big cat species, facilitate knowledge sharing, and mobilise resources for conservation.

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PAATHARA/KHONI

On a fog-laden morning ahead of Sankranti, a 52-year-old farmer in Jalantara Saasanam village of Srikakulam district prepared a ritual that once defined agrarian life in Uddanam.



Marla Dillemma gathered clay, wildflowers, and freshly harvested paddy to consecrate her Paathara, a traditional underground grain storage system practised by farming communities along the Mahendratana River near the Andhra Pradesh–Odisha border. The ritual blends agriculture, faith, and household food security.

What is Paathara or Khoni?

Known as Khoni in Odia, the Paathara is a rectangular pit dug into the ground, lined with straw and clay, and sealed with cow dung. It is primarily used to store paddy for household consumption until the monsoon.

Historically built in front of thatched homes, Paatharas symbolised prosperity and joint family living. Every paddy-growing household once maintained one, storing enough grain for the entire year.

A Practice Shrinking with Changing Lifestyles

In Jalantara Saasanam, a village of nearly 200 households, only two Paatharas were built this year. Cement roads, concrete houses, and shrinking living spaces have pushed the tradition to the margins.

Farmers like Ms. Dillemma and Juttu Moinamma now dig pits outside cattle sheds or in relatives' yards due to lack of space. Elderly villagers, once custodians of straw-rope making and pit preparation skills, say the practice has nearly vanished in the past two decades.

Health, Taste, and Cultural Value

Paathara-stored paddy is valued for its distinct taste and perceived health benefits. Slight discolouration during storage enhances flavour, a quality not achieved through modern storage methods.

Traditionally, the size of the Paathara reflected landholding and family size. Rice from such storage was also used for rituals, including Talambraalu during weddings, believed to carry blessings of the land.

- Paathara (Khoni) is a traditional underground grain storage system used in north coastal Andhra and south Odisha.
- The system protects grain from moisture, rodents, theft, and contamination.
- Paddy stored in Paathara is meant only for consumption, not for seeds or commercial sale.
- The practice is linked to Kharif-only paddy cultivation in the Mahendratana canal command area.

Last Survivors and Structural Challenges

The tradition now survives in a handful of villages across Kanchili, Sompeta, and Itchapuram mandals. Limited irrigation, despite funding support from NABARD for canal improvement, has reduced paddy cultivation to the Kharif season. As bullock carts, oxen, and thatched homes disappear, farmers fear Paathara may follow. For families like Ms. Dillemma's, its survival rests with the next generation, caught between modern convenience and ancestral wisdom.

ADMINISTRATIVE SCORECARDS FOR PUBLIC SERVANTS

India's civil services were originally designed to serve a colonial, extractive state and have since faced the complex task of adapting to democratic governance, developmental responsibilities and rising citizen expectations.



- From constitutional safeguards and successive Administrative Reforms Commissions to transparency and digital governance initiatives, civil service reform has been **incremental rather than transformative**.
- The recent introduction of “**administrative scorecards**” for **Union Secretaries by the Cabinet Secretariat** must be viewed as part of this **long continuum of reform efforts** aimed at improving efficiency, accountability and outcome-oriented governance at the highest levels of administration.

What Are the Administrative Scorecards?

- **Performance Measurement Framework:** Union Secretaries and their departments are assessed on a **100-mark scorecard**, enabling both self-comparison over time and cross-departmental benchmarking.
- **Key Quantitative Parameters:**
 - File disposal (20 marks)
 - Output / activities (15 marks)
 - Expenditure on schemes and capital expenditure (15 marks)
 - Public grievance redressal
 - Timely completion of PMG-monitored projects
 - Timely disposal of bills by PAO and CCA
- **Discipline and Incentives:**
 - **Negative marks (up to 12)** for delayed MSME payments, excessive foreign travel, abnormal pendency

- **Discretionary marks (5)** for exceptional performance, awarded by the Cabinet Secretary
- **Stated Rationale:** To ensure that administrative leadership is judged on **delivery and results**, reinforcing the principle that governance must produce outcomes, not explanations.\

How Scorecards Fit into Recent Civil Service Reforms

The scorecard initiative builds upon – and attempts to correct the limitations of – several **recent reform measures:**

- **Mission Karmayogi (2020):** Introduced to shift civil services from rule-based to **role-based and competency-based governance**, focusing on continuous capacity building through digital learning platforms (iGOT).
- **PRAGATI Platform:** Enabled real-time monitoring of infrastructure projects and grievance redressal through direct Prime Ministerial review, improving inter-ministerial coordination and execution speed.
- **E-Office and Digitisation Reforms:** Adoption of electronic file systems aimed at reducing delays, enhancing transparency and enabling faster decision-making.
- **Lateral Entry at Senior Levels:** Introduced to bring domain expertise from outside government into policymaking roles, though limited in scale and subject to debate on institutional continuity.
- **Right to Information Act, 2005:** A landmark reform that transformed bureaucratic culture by making decision-making processes subject to public scrutiny.

Despite these measures, a persistent criticism has been that **performance evaluation remained subjective**, politically influenced and weakly linked to outcomes – a gap that scorecards attempt to address.

Positive Contributions of Administrative Scorecards

- **Operationalising Second ARC Recommendations:** The **Second Administrative Reforms Commission (2009)** strongly advocated performance management systems, objective assessment and outcome orientation – principles directly reflected in scorecards.
- **Reducing Subjectivity in Evaluation:** Unlike confidential reports or informal reviews, scorecards rely on **measurable indicators**, limiting arbitrary assessments.
- **Strengthening Financial and Administrative Discipline:** Penalising delayed payments, inefficiencies and avoidable expenditure reinforces fiscal responsibility and service delivery discipline.
- **Embedding Accountability at the Apex Level:** By focusing on Secretaries, the reform targets the **commanding heights of administration**, signalling seriousness of intent.

Concerns and Structural Limitations

- **Risk of Mechanical Compliance:** Bureaucracies have historically absorbed reforms into routine processes; scorecards may degenerate into a **box-ticking exercise**.
- **Metric Dominance over Meaningful Outcomes:** There is a danger that **scores overshadow substance**, where numerical performance matters more than policy quality or long-term impact.
- **Residual Executive Control:** Discretionary marks and centralised oversight may still allow political preferences to shape evaluations.
- **Incomplete Reflection of Governance Complexity:** Quantitative indicators may inadequately capture complex functions such as inter-governmental coordination, institutional reform or crisis management.

What More Needs to Be Done

- **Integrate Scorecards with Career Progression:** Performance assessments should be meaningfully linked to promotions, postings and training pathways under Mission Karmayogi.

- **Balance Quantitative Metrics with Qualitative Review:** Independent audits, peer review and outcome evaluation should complement numerical scoring.
- **Institutionalise Autonomy with Accountability:** Reform must reduce fear-driven decision-making while maintaining responsibility – a core concern highlighted across reform commissions.
- **Continuous Feedback and Refinement:** As sought by the Cabinet Secretary, iterative redesign is essential to prevent reform fatigue and ensure credibility.

Administrative scorecards represent an **evolutionary reform**, not a revolutionary one. They address a long-standing weakness in India's civil service architecture – the absence of objective, outcome-linked evaluation at senior levels.

- If implemented thoughtfully and integrated with broader reforms such as Mission Karmayogi and digital governance, they can strengthen the democratic “steel frame”. If reduced to procedural compliance, they risk becoming another absorbed reform. The difference lies in political commitment and institutional follow-through.

WOMEN-LED SELF-HELP GROUPS (SHGs)

Women-led Self-Help Groups (SHGs) have emerged as one of India's most effective instruments for poverty reduction, financial inclusion and grassroots democracy. Over the last decade, the rural economy has diversified beyond subsistence agriculture, raising aspirations among women for enterprise-led growth rather than mere income support.



- As India enters the next planning cycle (2026–31), the question is how to transition rural women from **collective micro-finance participants to independent, scalable entrepreneurs.**

Current Status: What DAY-NRLM Has Achieved

- **Scale and Reach:** Deendayal Antyodaya Yojana–National Rural Livelihoods Mission has mobilised **10 crore rural households** into **91 lakh SHGs**, federated into **5.35 lakh Village Organisations** and **33,558 Cluster-Level Federations (CLFs).**
- **Financial Inclusion:** SHGs have leveraged over **₹11 lakh crore bank credit** with NPAs of just **~1.7%**, far lower than conventional retail lending.
- **Income Outcomes:** The number of **Lakhpati Didis** has crossed **2 crore**, reflecting successful livelihood diversification.
- **Political and Social Capital:** SHGs have strengthened women’s bargaining power, enabling States to use women collectives as delivery platforms for DBT schemes (e.g., **Ladli Laxmi Yojana – MP, Jeevika – Bihar, Kudumbashree – Kerala.**)
- **Institutional Backbone:** CLFs function as sub-block institutions anchoring finance, livelihoods, training and social mobilisation.

Key Challenges Limiting the Next Leap

- **Weak Autonomy of CLFs:** Many CLFs function under administrative control of officials, diluting their original vision as **community-owned institutions;** leadership decision-making remains constrained.
- **Idle and Poorly Governed Funds:** Over **₹56,000 crore** of capitalisation support lies with community institutions, increasing risks of underutilisation and misuse in absence of strong social and statutory audits.
- **Credit Ceiling for Mature Enterprises:** SHG-bank linkage loans are often too small for enterprise expansion; most women lack **individual credit histories or CIBIL scores,** restricting access to larger loans.

- **Overdependence on Debt Financing:** Current financing is dominated by loans; there is limited access to **equity, venture capital or blended finance,** which constrains innovation and scaling.
- **Fragmented Livelihood Support:** Sub-schemes operate in silos (farm, livestock, non-farm), reducing cumulative impact despite availability of planning tools like **Village Prosperity and Resilience Plans (VPRPs).**
- **Severe Marketing Bottlenecks:** SHG products face weak branding, poor packaging, lack of logistics and minimal access to organised retail or e-commerce markets.

Way Forward: Strategy for 2026–2031

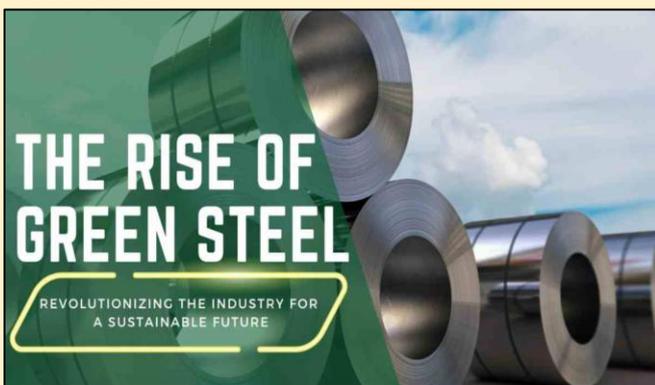
- **Reclaim CLFs as Community Institutions:** Strengthen CLFs as autonomous, professionally managed bodies on the lines of **Kudumbashree (Kerala) and Jeevika (Bihar),** insulated from routine bureaucratic interference.
- **Robust Financial Governance:** Institutionalise **mandatory social audits,** statutory audits and transparent MIS for CLFs to ensure accountable use of large community funds.
- **Graduation to Individual Credit:** Generate **individual credit scores** for SHG members and position CLFs as guarantor-cum-monitoring agencies to facilitate higher-value enterprise loans.
- **Innovative Financing Models:** Move beyond micro-credit to **equity funding, blended finance and venture support,** in partnership with **SIDBI, NBFCs, fintechs and neo-banks,** tailored to rural women entrepreneurs.
- **Business Clinic Model:** Transform CLFs into **one-stop enterprise hubs** offering training, finance facilitation, compliance support, technology access and mentoring.
- **Institutionalised Convergence:** Establish a **Convergence Cell at NITI Aayog** to align NRLM with schemes of agriculture, dairy, food processing and MSMEs, reducing duplication and ensuring scale.

- **Dedicated Marketing Architecture:** Create a **National Marketing Vertical** for SHG products focusing on branding, quality certification, logistics and partnerships with private players; select CLFs can act as regional logistics hubs.
- **Professional Human Resources:** Deploy trained professionals (finance, marketing, agri-business, digital commerce) while respecting the organic growth pace of community institutions.

The next phase of rural women entrepreneurship must shift from **credit-led inclusion to enterprise-led transformation**. If CLFs are empowered as autonomous institutions, finance is diversified beyond debt, and market access is professionalised, DAY-NRLM can evolve from a poverty alleviation programme into India's largest platform for **women-led rural economic growth**, social leadership and resilient livelihoods.

GREEN STEEL & CLIMATE RESILIENCE GOALS

At COP30 in Belém (2025), India committed to submitting a **revised, more ambitious Nationally Determined Contribution (NDC)**. Achieving this commitment requires **economy-wide decarbonisation**, especially in **hard-to-abate sectors**—with **steel being the most critical**.



India's steel sector:

- Produces **~125 million tonnes/year**
- Needs to scale to **>400 million tonnes by mid-century**
- Contributes **~12% of India's total carbon emissions**, primarily due to **coal-based blast furnace technology**

This places steel at the **centre of India's climate-growth dilemma**.

Green steel is not optional—it is a strategic necessity. Without rapid transition to **low-carbon steelmaking**, India risks:

- Lock-in of **carbon-inefficient infrastructure**
- Loss of **export competitiveness**
- Failure to meet climate commitments

Key Challenges

1. Carbon Lock-in Risk

- Steel investments today determine emissions for **30–40 years**
- Continued expansion of coal-based blast furnaces risks locking in **billions of dollars of high-carbon assets**

2. High Cost & Technology Barriers

- Low-carbon steel has **30–50% higher capital intensity**
- Technologies (hydrogen DRI, CCUS) are still:
 - Capital-heavy
 - Low-maturity
 - Scale-constrained

3. Input Constraints

- **Green hydrogen:** limited supply, high cost
- **Renewable energy:** insufficient dedicated capacity for steel
- **Scrap steel market:** informal, fragmented, limited availability
- **Natural gas:** limited availability as a transition fuel

4. Policy Gaps

- Despite:
 - **Green Steel Roadmap (Sept 2025)**
 - **Green Steel Taxonomy (Dec 2024)** – first globally
 - **National Green Hydrogen Mission**
 - **Carbon Credit Trading Scheme (CCTS) covering 253 steel units**

Investment signals remain weak; incentives have not yet shifted capital away from coal-based routes.

Global Context & External Pressure

- **EU Carbon Border Adjustment Mechanism (CBAM)** penalises high-carbon steel imports

- Carbon prices in Europe reached **\$90–100 per tonne of CO₂**, making green steel viable
- Countries unable to demonstrate low-carbon production risk:
 - Border taxes
 - Loss of premium export markets

Why It Matters

- Steel underpins:
 - Infrastructure
 - Manufacturing
 - Defence and urbanisation
- Decarbonising steel:
 - Enables India's **net-zero pathway**
 - Preserves **export competitiveness**
 - Prevents future stranded assets
- Early movers in green steel gain **first-mover advantage** globally

Way Forward

1. Carbon Pricing & Market Signals

- Roll out **carbon price regime early**
- Use price signals to disperse green steel costs across value chains

2. Scale from Pilots to Commercialisation

- Fast-track:
 - Demonstration plants
 - Near-zero emission full-scale facilities
- Mandate all **new steel capacity** to be **low or near-zero carbon**

3. Public Procurement & Demand Creation

- Create **domestic demand** via:
 - Public procurement of green steel
 - Infrastructure mandates
- Socialise **Green Steel Taxonomy**

4. Infrastructure & Shared Ecosystems

- Government-led hubs for:
 - Green hydrogen
 - Renewable energy
 - CO₂ transport and storage
- Shared infrastructure to reduce costs for MSME steel producers

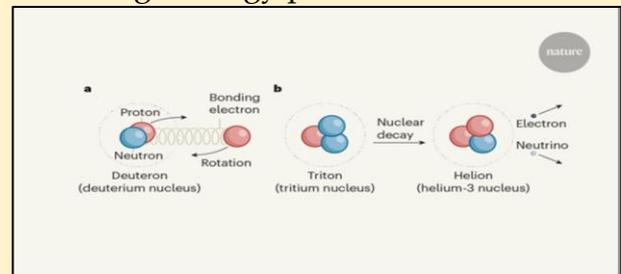
5. Equitable Transition

- Fiscal support for:
 - Small and medium producers
 - Workforce reskilling
- Ensure transition is **just and inclusive**

Steel is India's **next climate frontier**. What renewable energy was to India a decade ago, **green steel is today**—a test of policy credibility, industrial vision and climate leadership. By combining: **Decisive corporate action, Robust, market-aligned policy frameworks, Early investment signals**, India can decarbonise steel, safeguard growth, and shape the future of global sustainable industrialisation.

DEUTERON

Recently, a new study out of the ALICE collaboration at CERN's Large Hadron Collider (LHC) has explained how deuterons survive high-energy particle collisions.



About Deuteron:

- **Nature:** A deuteron is a **stable isotope of hydrogen** with a nucleus containing one proton and one neutron.
- **Symbol:** It is denoted by the symbol **"²H" or "D"**.
- **Presence:** It is found in small amounts **in natural water and in the atmosphere of Jupiter and Saturn**.
- **Mass:** The mass of a deuteron is approximately about **twice the mass of a proton**.
 - **Charge:** A deuteron has a **net positive charge of +1**, since it contains one proton.
 - **Spin:** The deuteron has a **nuclear spin of 1**, which means that it behaves like a tiny magnet with a north pole and a south pole.
- **Magnetic moment:** The deuteron has a magnetic moment that is approximately **0.8574 nuclear magnetons**, which is about **0.31 times the magnetic moment of a proton**.

● Applications:

- It is used in the production of **heavy water**, which is used as a moderator in nuclear reactors.
- It is used in the production of **deuterium**, which is used as a fuel in fusion reactors.
- It is used in the production of **tritium**, which is used in nuclear weapons.

MAHAKALESHWAR TEMPLE

Supreme Court of India recently declined to entertain a plea against the practice of 'VIP Darshan' at the Shri Mahakaleshwar Temple in Ujjain.



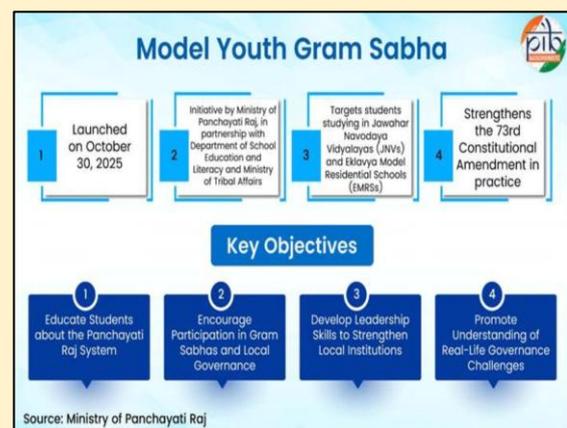
About Shri Mahakaleshwar Temple:

- **Location:** It is a Hindu temple located on the banks of the River Shipra at **Ujjain in Madhya Pradesh**.
- **Significance:** It is dedicated to Lord Shiva. It is **one of the 12 Jyotirlingas in India**.
- **Uniqueness:** It is the **only Jyotirlinga that faces south (Dakshinamukhi)**, a unique feature associated with Tantric traditions where Shiva is considered the 'Lord of Time and Death'.
- **History:** The history of the temple dates back to ancient times, with **references to the temple found in various Hindu scriptures and texts**. The temple finds mention in the **Puranas**. The renowned poet Kalidas also mentioned this temple in his creations.

- **Construction:** The current structure of the temple was built **in the 18th century by the Maratha ruler Ranoji Shinde**. However, the temple has been destroyed and rebuilt several times throughout history.
- **Architecture:** The architecture of the temple shows the **influence of Maratha, Bhumija, and Chalukya styles** of structural design.
- **Spread:** The temple complex is spread **over five levels**, one of which is underground. The Sabha Mandap (assembly hall) and Garbha Griha (sanctum sanctorum) are adorned with elaborate sculptures depicting various Hindu deities and mythological scenes.
- **Craftsmanship:** The sanctum houses the Jyotirlinga, which is the focal point of devotion and rituals. The **grand spire (shikhara), intricately carved pillars, and ornate ceilings** are proof of the exquisite craftsmanship.

MODEL YOUTH GRAMSABHA

The Ministry of Panchayati Raj recently organised a National Award Ceremony to felicitate the winners of the Model Youth Gram Sabha.



About Model Youth Gram Sabha:

- **Nature:** It is a simulated forum for **school children to participate in mock Gram Sabha sessions**.
- **Objective:** It is a pioneering initiative to **strengthen Janbhagidari and promote participatory local governance** by engaging students in simulated Gram Sabha sessions.

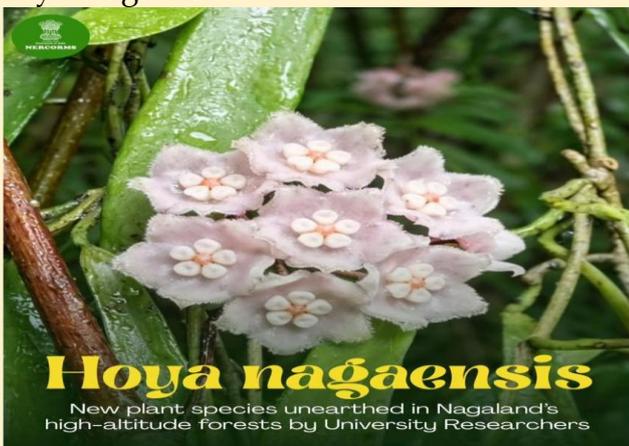
- **Uniqueness:** It is an initiative based on the Model UN – an educational simulation of the United Nations – in schools across the country.
- **Nodal ministries:** It is an initiative of the Ministry of Panchayati Raj, in collaboration with the Ministry of Education and the Ministry of Tribal Affairs.
- **Implementation:** It will be rolled out across more than 1,000 schools nationwide, including Jawahar Navodaya Vidyalayas, Eklavya Model Residential Schools (EMRSs), and State Government Schools.
- **Focus:** Students from classes 9-12 will play the roles of sarpanch, ward members, and village-level officials, including village secretary, Anganwadi worker etc. They will hold mock meetings of the Gram Sabha, discuss various issues, and prepare the village budget and development plans.
- **Financial support:** The Panchayati Raj Ministry also provides a support of Rs 20,000 to each school for holding the mock Gram Sabha.

- **Genus:** It belongs to the Hoya genus, a group known for its ornamental value.
- **Uniqueness:** It is currently known from only a single location, making it highly vulnerable.
- **Features:** The plant displays unique leaf shapes and floral features. It produces distinctive star-shaped flowers and exudes milk-like latex, a characteristic of many species in the Apocynaceae or milkweed family.
- **Habitat:** It was found growing in a temperate forest ecosystem that remains largely unexplored by science.

- **Threats:** Major threats to this plant include shifting cultivation and forest disturbance.
- **Ecological significance:** It highlights the importance of community-protected forests of Nagaland as a vital refuge for rare and endemic plants. It underscores the Eastern Himalaya as a reservoir of undiscovered plant diversity.
- **Conservation status:** It is classified as 'Critically Endangered' (provisional classification) as per the IUCN Red List.

HOYA NAGAENSIS

Recently, a new plant species has been discovered in Nagaland and it's named as Hoya Nagaensis.



About Hoya Nagaensis:

- **Location:** It is a new plant species found in the high-altitude forests of Nagaland.
 - **Nature:** It is a member of the 'wax plant family' discovered in the Kavunhou Community Reserved Forest in Phek district.

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Course Fees: Rs. 11,800/- (Fees Rs. 10,000/- + GST Rs. 1,800/-).

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EXERCISE 'KHANJAR'

The annual India–Kyrgyzstan joint special forces exercise 'Khanjar' commenced on February 4 at Missamari in Assam, reinforcing defence cooperation between the two countries. The bilateral drill underscores the shared commitment of India and Kyrgyzstan towards enhancing counter-terrorism capabilities and promoting regional peace and stability.



Participating Forces And Duration

The exercise will be conducted from February 4 to February 17 and involves a 20-member contingent from the Indian Army's Parachute Regiment (Special Forces) and an equal-strength team from the ILBRIS Special Forces Brigade of Kyrgyzstan.

The training is being held at Missamari, a key military station in Assam, known for hosting joint exercises and operational readiness activities.

Focus On Counter-Terrorism And Special Operations

According to the Ministry of Defence, the primary aim of Exercise Khanjar is to exchange best practices and operational experiences in counter-terrorism and special forces missions.

The training focuses on urban and mountainous terrain, reflecting real-world operational environments. Key skill areas include sniping, complex building intervention, and advanced mountain craft, enhancing the tactical proficiency of participating troops.

Enhancing Interoperability Under UN Mandate

Senior defence officials stated that the exercise is designed to improve interoperability between the special forces of both nations.

Emphasis is being placed on joint operations in urban warfare and counter-terrorism scenarios under a United Nations mandate. This reflects the growing alignment between India and Kyrgyzstan on global security challenges, including terrorism, extremism, and transnational threats.

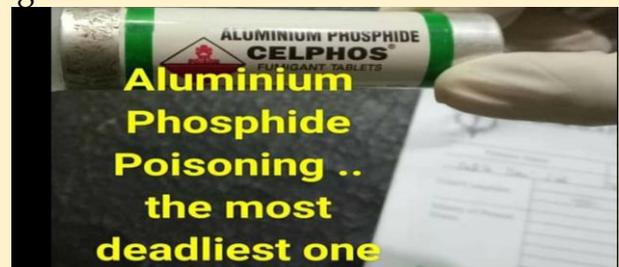
India–Kyrgyzstan relations have expanded steadily in recent years, particularly in defence and security cooperation.

Key areas include training of Kyrgyz military personnel at Indian defence institutions, regular joint exercises, exchange programmes, and collaborative research at the Kyrgyz–India Mountain Bio Medical Research Centre in Bishkek. Exercise Khanjar continues to serve as a cornerstone of this evolving strategic partnership.

CELPHOS

Doctors at the Postgraduate Institute of Medical Education and Research (PGIMER) have reported a major global breakthrough in the treatment of aluminium phosphide poisoning, commonly known as Celphos.

The innovation offers a new, affordable, and life-saving approach to managing one of the most lethal pesticide poisonings prevalent in India, particularly in rural and agricultural regions.



Breakthrough Clinical Study at PGIMER

The research, conducted by the Department of Internal Medicine at PGIMER, is the first clinical study worldwide to demonstrate the effectiveness of intravenous lipid emulsion therapy in aluminium phosphide poisoning. The findings have been published in the internationally reputed journal "European

Review of Medical and Pharmacological Sciences”, bringing global recognition to the work. The study was carried out under the guidance of Dr Sanjay Jain, Dean (Academics) and Head of Internal Medicine at PGIMER.

Improved Outcomes With Lipid Emulsion Therapy

The randomised clinical study showed that patients receiving intravenous lipid emulsion in addition to standard medical care had significantly lower mortality rates.

They also experienced faster correction of severe metabolic acidosis, improved haemodynamic stability, and better recovery even in cases presenting with shock and cardiac complications.

Early administration of the therapy was found to substantially alter the otherwise fatal clinical course of aluminium phosphide poisoning.

Affordable Solution for Rural Healthcare

A key advantage of intravenous lipid emulsion therapy is its practicality. The treatment is inexpensive, widely available, and already stocked in most hospitals, including district and peripheral healthcare facilities.

This makes it particularly valuable for rural and remote areas, where the burden of Celphos poisoning is highest and access to advanced critical care infrastructure is limited.

- Aluminium phosphide is commonly known as Celphos.
- It is widely used as a grain preservative in agriculture.
- Intravenous lipid emulsion is now shown to reduce mortality.
- Punjab, Haryana, and Uttar Pradesh report high poisoning incidence.

Public Health Significance and Research Impact

Aluminium phosphide poisoning remains a serious public health challenge in several Indian states due to its widespread agricultural use and extremely high fatality rates.

The PGIMER-led study, funded by the institute’s Medical Education and Research Cell, underscores the importance of locally relevant, evidence-based research. By identifying an effective and accessible treatment, the breakthrough has the potential to save thousands of lives and significantly strengthen emergency care outcomes across India.

DUMPSITE REMEDIATION ACCELERATOR PROGRAMME (DRAP)



India’s urban cleanliness journey, strengthened by a decade of progress under the Swachh Bharat Mission, has entered a decisive new phase focused on eliminating legacy waste dumpsites. These long-standing waste accumulations pose serious environmental and public health risks.

To accelerate their removal, the Government of India launched the Dumpsite Remediation Accelerator Programme (DRAP) in November 2025, with the goal of achieving “Lakshya: Zero Dumpsites” by October 2026.

Legacy Dumpsites and Environmental Concerns

A dumpsite refers to land used by Urban Local Bodies for disposing municipal solid waste, often accumulated over decades through unscientific methods. Such sites contaminate soil and groundwater, degrade air quality, emit methane, and pose fire and health hazards. Across India, around 2,479 legacy dumpsites have been identified, collectively holding nearly 25 crore metric tonnes of waste spread over about 15,000 acres.

Scale of the Challenge and Current Progress

India currently generates nearly 1.62 lakh tonnes of municipal solid waste daily, with projections rising sharply by 2030 and 2050. Without remediation, emissions from this sector could reach 41.09 million tonnes of CO₂-equivalent by 2030.

At present, remediation work is underway at 1,428 dumpsites, with over 62% of legacy waste already processed. In 2025 alone, 459 dumpsites across 438 cities achieved complete remediation.

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Dumpsite Remediation Accelerator Programme (DRAP)

Under DRAP, 214 high-impact dumpsites across 30 States and UTs have been prioritised, as they account for nearly 80% of the remaining legacy waste, about 8.6 crore metric tonnes. The programme follows a dual strategy of removing existing dumpsites and preventing new ones by ensuring scientific processing of fresh waste. Land reclaimed through remediation is earmarked for solid waste management infrastructure or green cover development.

Important Facts for Exams

- DRAP was launched in November 2025 with a target of Zero Dumpsites by October 2026.
- India has identified about 2,479 legacy dumpsites containing ~25 crore metric tonnes of waste.
- High-impact dumpsites under DRAP account for nearly 80% of remaining legacy waste.
- Biomining is the key technology used for legacy waste remediation.

Framework, Biomining, and Way Forward

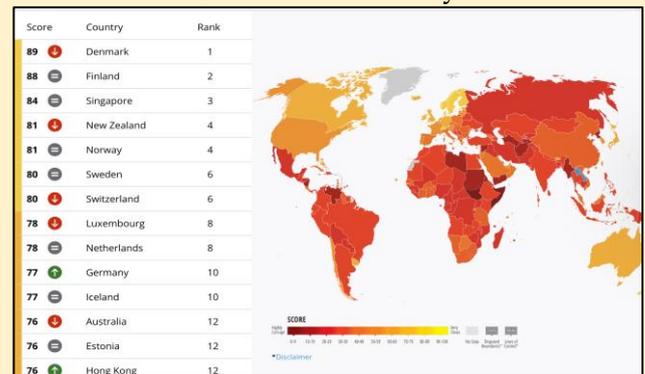
DRAP is anchored in the 5P framework of SBM-Urban 2.0: Political Leadership, Public Finance, Partnerships, People's Participation, and Project Management.

Legacy waste is treated through biomining, where waste is stabilised, segregated, and channelled into reuse pathways such as road construction, waste-to-energy, recycling, and composting, with only non-reusable rejects sent to scientific landfills.

Strengthened processing infrastructure under SBM-Urban 2.0 and the Mission Zero Dumpsites vision is expected to support sustainable urban growth, reduce emissions, and align India's cities with long-term environmental and development goals.

CORRUPTION PERCEPTION INDEX

India has been ranked 91st out of 182 countries and territories on the Corruption Perceptions Index for 2025, released recently.



About Corruption Perceptions Index:

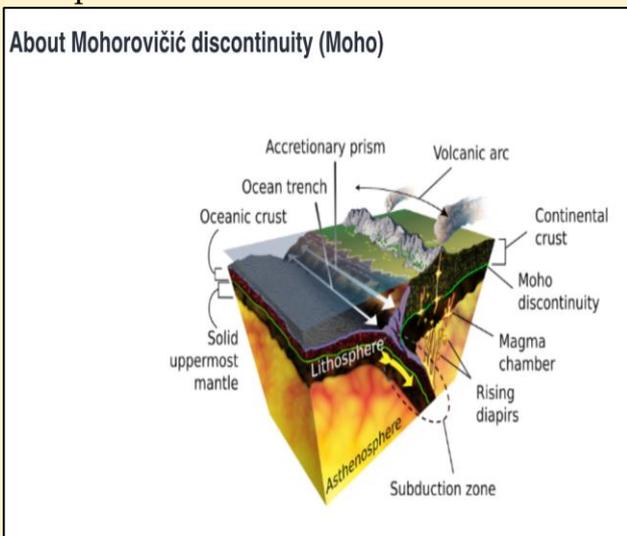
- **Nature:** It is the most widely used global corruption ranking in the world.
- **Objective:** It measures how corrupt each country's public sector is perceived to be, according to experts and business people.
- **Publishing agency:** The index has been published by Transparency International, a Berlin-based non-governmental organisation (NGO).
- **Frequency:** It has been published annually since its inception in 1995.
- **Methodology used:** It ranks countries "by their perceived levels of public sector corruption, as determined by expert assessments and opinion surveys."

- **Scale:** It uses a scale of **zero to 100**, where **“zero” is highly corrupt and “100” is very clean**. The score for each country is derived from a minimum of three data sources, selected from 13 distinct corruption surveys and assessments.
- **Sources:** These sources are gathered by a range of reputed organisations, such as the **World Bank and the World Economic Forum**.
- **Key highlights of Corruption Perceptions Index (CPI) 2025:**
 - **Least Corrupt nations:** Denmark, Finland and Singapore.
 - **Most Corrupt nations:** South Sudan, Somalia and Venezuela.
- Performance of **India:** Its rank improved **from 96 (2024) to 91 (2025)**.

- **Identification method:** Scientists distinguish them using a **waveform-based method** that compares Sn waves (which travel through the mantle) and Lg waves (which travel through the crust). A high Sn/Lg ratio indicates a mantle origin.
- **Global distribution:** While rare (only 459 confirmed globally since 1990), they are regionally clustered.
- **Major clusters lie Beneath the Himalayas (Southern Asia) and the Bering Strait (between Asia and North America)**, other locations include Italy, Tibet, the Caucasus, East Africa, Alaska, and Idaho.
- **Difference with common earthquakes:** Unlike most earthquakes, which originate in the Earth’s cold, brittle crust at depths of around 10 to 29 kilometres, mantle earthquakes often **occur more than 80 km below the Mohorovičić discontinuity** (boundary between the crust and the mantle).
- **Impact:** Due to their extreme depth, they typically **cause minimal shaking or danger** at the Earth’s surface.
- **New observation:** Their existence proves the mantle is not purely ductile (plastic-like) but can host brittle-like failures, **challenging the view that seismicity is confined to the crust**.
- **Significance:** The new map will help scientists learn more about **the mechanics of mantle earthquakes**.

CONTINENTAL MANTLE EARTHQUAKES

Recently the Stanford researchers have produced the first global map of a rare type of earthquake i. e Continental mantle earthquakes.



About Continental Mantle Earthquakes:

- **Nature:** These are seismic events which **originate in the mantle beneath continents**.
 - **Origin:** They occur in the **mantle lithosphere**, significantly deeper than standard crustal earthquakes.

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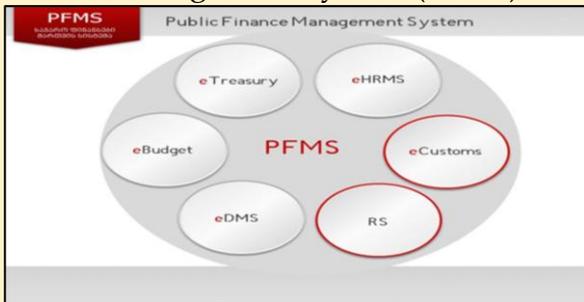
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PUBLIC FINANCIAL MANAGEMENT SYSTEM (PFMS)

Recently, the Minister of State for finance informed the Rajya Sabha about the Public Financial Management System (PFMS)



About Public Financial Management System (PFMS):

- **Nature:** It is a **Centralized Transaction System & Platform, providing end to end financial management services to all stakeholders.** It is a web-based online transaction system for fund management and e-payment to implementing agencies and other beneficiaries.
- **Origin:** It was launched in **2009 as a Central Sector Scheme** of the Planning Commission (initially called the Central Plan Schemes Monitoring System or CPSMS).
- **Objective:** It aims to facilitate a sound Public Financial Management System for Government of India by **establishing an efficient fund flow system as well as a payment cum accounting network.**
- **Implementation:** It is developed and implemented by the **Controller General of Accounts (CGA), Department of Expenditure, Ministry of Finance, Government of India.**
- **Coverage:** It includes **all Central Sector and Centrally Sponsored Schemes (CSS),** as well as other expenditures like Finance Commission Grants.
- **Integration:** It is linked with the **Core Banking System (CBS) of over 300 banks**(public, private, RRBs, and cooperative) and the National Payments Corporation of India (NPCI) for Aadhaar-linked payments.

- **Tracking of funds:** It tracks funds released under all **Plan schemes of Government of India,** and real time reporting of expenditure at all levels of Programme implementation. The government has mandated PFMS as a single platform for payment, accounting & reconciliation of government transactions and DBT.
- **Cash management modules:** It has been introduced on PFMS for **better fund management like Single Nodal Agency (SNA), Treasury Single Account (TSA), Central Nodal Agency (CNA) and Single Nodal Agency Samyochit Pranali Ekikrit Shighra Hastantaran (SNA SPARSH).**
- **Grievance Redressal System:** PFMS has introduced the **Customer Relationship Management (CRM) system,** to strengthen the grievance redressal mechanism for PFMS users/ beneficiaries.
- **Transparency & Accountability:** It has **reduced manual intervention** and has provided a clear audit trail of every rupee spent.
- **Decision Support System (DSS):** It has provided reliable data to ministries for **better budget planning** and evidence-based policy analysis.

SCALP MISSILE

India and France are in discussions to finalise a major deal for the procurement of SCALP cruise missiles, following their successful use during Operation Sindoor last year.



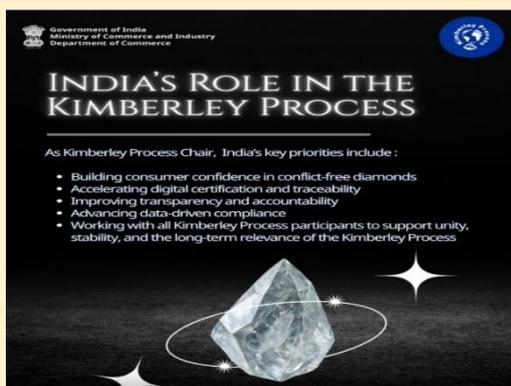
About SCALP Missile:

- **Nature:** The SCALP missile is a **long-range, air-launched cruise missile**.
- **Other names:** It is also known as **Storm Shadow**.
- **Full form:** Its full form is **Système de Croisière Autonome à Longue Portée**.
- **Development:** It was developed together by **France and the United Kingdom**.
- **Deployment:** It is in service with **multiple NATO and allied air forces**.
- **Structure:** The missile has a launch **weight of around 1,300 kg** and a **length of approximately 5.10 m**.
- **Range:** It is powered by turbojet engines and has a range of **250 km**.
- **Warhead:** The missile has a **tandem warhead configuration**, comprising a shaped charge for initial penetration and a secondary high-explosive charge for enhanced lethality.
- **Stealth design:** Its **stealth design and advanced navigation system** (INS, GPS, and terrain referencing) allow it to fly low, **evade detection**, and strike deep into enemy territory.
- **Precision strike:** On approaching the target, its **onboard infrared seeker matches the target image with the stored picture** to ensure a precision strike and minimal collateral damage.
- **Operational capability:** Capable of **night and all-weather operations**, SCALP is particularly effective for penetrating hardened bunkers and ammunition stores.

About Kimberley Process:

- **Nature:** It is a **coalition of governments, civil society and the diamond industry**, which regulates the international trade in rough diamonds.
- **Establishment:** It was launched in **2003** following **UN General Assembly Resolution 55/56**.
- **Objective:** It aims to **eliminate the trade in so-called conflict diamonds**.
- **Definition of conflict diamonds:** These are defined by the relevant United Nations Security Council resolution (UNSC resolution 1459) as **“rough diamonds used by rebel movements or their allies to finance conflict aimed at undermining legitimate governments”**.
- **Eligibility:** Participants in the scheme are required to:
 - **Satisfy ‘minimum requirements’** and establish national legislation, institutions and import/export controls;
 - **Commit to transparent practices** and to the exchange of critical statistical data;
 - **Trade only with other participants** in the Scheme;
 - **Certify shipments** as conflict-free.
- **Participants:** Currently it has **60 participants, representing 86 countries** (with the EU as a single participant) which account for more than 99% of the global rough diamond production and trade.
- **Meeting:** The KP meets **twice a year** at the Intersessional and Plenary meetings. It is chaired by a participating country on an annual, rotating basis.
- **Consensus based:** As a consensus-based body, the KP relies on the **constructive engagement from all participants** of the tripartite structure.

KIMBERLEY PROCESS (KP)



India has assumed the chair of the Kimberley Process (KP) for the year 2026.

About Kimberley Process Certification Scheme (KPCS):

- **Nature:** It is the mechanism the KP uses to **prevent the trade of conflict diamonds**.

- **Objective:** Under this scheme, the **Government implements safeguards on shipments of rough diamonds** and certifies the diamond as conflict-free.
- **Certification:** According to this Scheme, each rough diamond shipment must be accompanied by the Kimberley Process certificate and transported in a tamper-resistant container. The KP certificate **states the authenticity of the rough diamond.**
- **Role of India:** Since 2003, India has been **actively participating** in the KPCS process.
- **Nodal department:** The **Department of Commerce** is the nodal Department. Gem & Jewellery Export Promotion Council (GJEPC) is designated as the KPCS Importing and Exporting Authority in India.
- **Strategic importance:** India is the **world's leading hub for cutting and polishing diamonds**, processing nearly 90% of the world's diamonds.

- **Other names:** Mangrove clams, commonly known as **mud clams**, are locally called '**Kandal Kakka**' in northern Kerala.
- **Scientific Name:** Its scientific name is **Geloina erosa** (also referred to as *Polymesoda erosa*).
- **Habitat:** They are found in **muddy, brackish, and even nearly freshwater regions** within mangrove swamps.
- **Distribution:** These are widely distributed in the **Indo-Pacific region.**
- **Tolerant:** This species displays remarkable tolerance, enabling them to **thrive across a broad spectrum of salinity levels.**
 - **Life cycle:** The life cycle of the clam consists of **four distinct phases:** larval stage, spat, juvenile and adult clam.
 - **Feeding behaviour:** It is a **filter-feeding species**, primarily active during low-tide immersion stages characterized by frequent inundation.
- **Ecological role:** It plays a crucial ecological role by **recycling nutrients, stabilising sediments and strengthening mangrove ecosystems.**
 - **Significance:** It provides **food security and livelihoods** in coastal regions.
- **Threats:** In India, particularly along the east coast and in island regions, wild stocks have been steadily declining due to **indiscriminate harvesting, habitat degradation, pollution and coastal development.**
- **Conservation applications:**
 - **Mangrove Ranching:** Releasing **hatchery-produced seeds into degraded mangrove areas** to restore natural populations.
 - **Estuarine Aquaculture:** Enabling environment-friendly farming that **requires minimal external inputs.**

MANGROVE CLAM



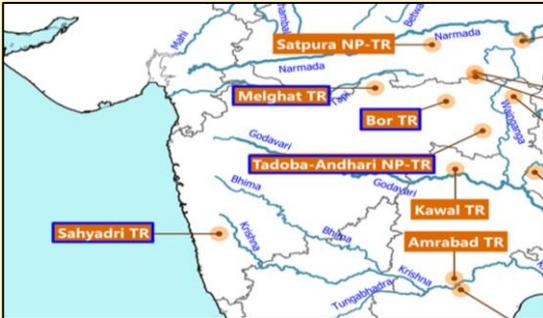
Recently, the ICAR–Central Marine Fisheries Research Institute (CMFRI) has successfully achieved captive breeding of the mangrove clam (*Geloina erosa*).

About Mangrove Clam:

- **Nature:** It is a **burrowing bivalve inhabiting organic-rich muddy substrates** in intertidal mangrove ecosystems.

SAHYADRI TIGER RESERVE

In a significant boost to tiger conservation in western Maharashtra, a third tigress was released into the wild at the Sahyadri Tiger Reserve (STR) recently.



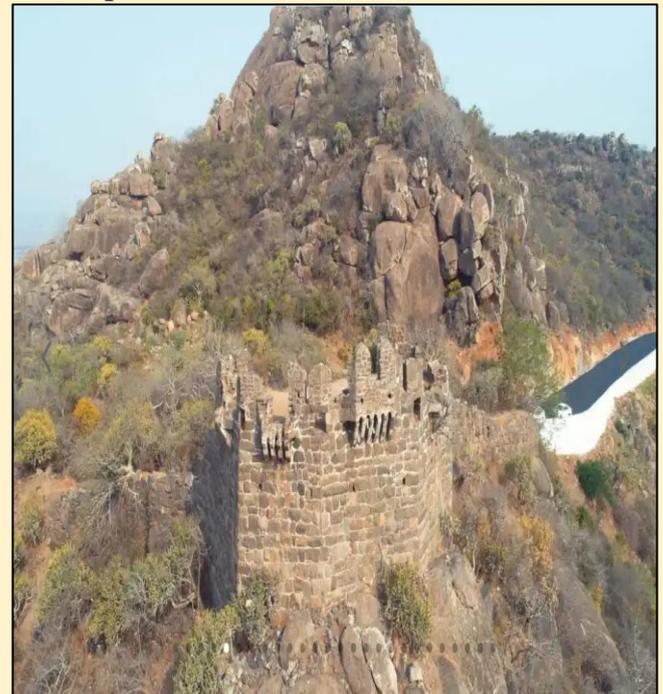
About Sahyadri Tiger Reserve (STR):

- **Location:** It is located in the Sahyadri Ranges of the **Western Ghats in Maharashtra**. It is the northernmost tiger habitat in the Western Ghats.
- **Recognition:** It is the first tiger reserve of Western Maharashtra and the **fourth tiger reserve of the State**.
- **Spread:** It spans **four districts of Satara, Sangli, Kolhapur, and Ratnagiri**. It is spread over two protected areas of Koyana Sanctuary (KWLS) and Chandoli National Park.
- **Rivers:** The central portion of STR is occupied by the “Shivsagar” reservoir of the **Koyana River** and the “Vasant Sagar” reservoir of the **Warana River**.
- **Connectivity:** It is linked to **Radhanagari Wildlife Sanctuary (north) and Kali Tiger Reserve in Karnataka (south)** via the Sahyadri-Konkan corridor.
- **Terrain:** The habitat of Sahyadri is composed of **woodlands, grasslands, and plateaus**, the latter **locally referred to as “Sadaa”**, which are lateritic in nature with considerable habitat value.
- **Vegetation:** The forest cover here is that of **moist evergreen, semi-evergreen, moist, and dry deciduous vegetation**. It is the only place where climax and near-climax vegetation are plentiful and prospects of adverse anthropogenic influence in the future are minimal.

- **Flora:** Dense tree cover includes species such as **teak, bamboo, Indian laurel, and jamun**. Medicinal plants like **Asparagus racemosus and Aegle marmelos** grow abundantly. Unique Western Ghats endemics, including rare orchids and shrubs, flourish in the reserve’s humid microclimates.
- **Fauna:** It is home to the endangered species of top carnivores such as **Tiger, Wild dog, and Leopard**. The herbivores include **Gaur, Sambar, Four Horned Antelope, Mouse Deer, and Giant Squirrel**. The habitat also supports hornbills, and many other endemic birds.

KONDAVEEDU FORT

The Union minister of state recently announced plans for the comprehensive development of the historic Kondaveedu Fort.

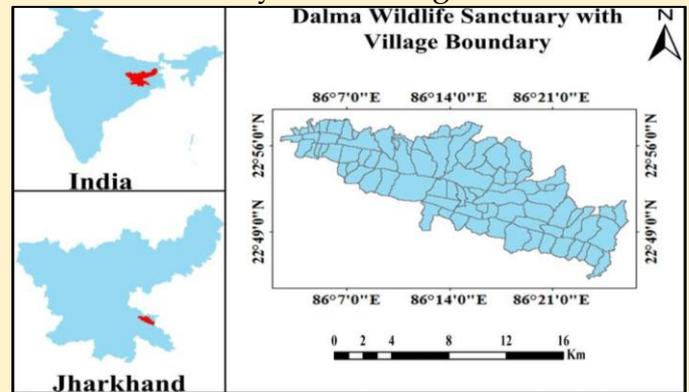


About Kondaveedu Fort:

- **Location:** Kondaveedu Fort is a historical fortification located at Kondaveedu village in the **Guntur district of Andhra Pradesh**.
- **Other names:** It is also known as **Kondavid Fort**.
 - **Height:** It is spread across a range of hills at **around 1,050 feet elevation**.

DALMA WILDLIFE SANCTUARY

The Jharkhand tourism minister recently launched a jungle safari and laid the foundation for 30 eco-cottages at Dalma Wildlife Sanctuary in East Singhbhum.



About Dalma Wildlife Sanctuary:

- **Significance:** It is the **largest hill fort** in present **Andhra Pradesh**.
 - **Construction:** It was constructed during the time of the **Telugu Chodas**, strengthened by the **Kakatiyas** and occupied by Prolaya Vema Reddy, who shifted his capital from Addanki to Kondaveedu in 1323 AD.
 - **Later rulers:** Later it was taken over by the **Gajpathis of Orissa** and ravaged by the Bahmani Sultans in 1458. The fort later came under the control of the **Vijayanagara Empire**, the **Golconda Sultanate**, the **Mughals**, the French, and the British.
 - **Related personalities:** The great **Telugu poet Srinatha** was associated with the Reddy court and praised the fort in his writings.
 - **Architecture:** The architecture displays a **blend of Hindu and Islamic styles**.
 - **Building materials:** It was mainly constructed with **granite stones and lime mortar**.
 - **Notable features:** It features massive granite fortifications, 23 bastions connected by **defensive walls**, and two main entrances called **Kolepalli Darwaza and Nadella Darwaza**.
 - **Engineering marvels:** The fort is renowned for its **advanced water conservation systems**, utilizing natural depressions and three main reservoirs: Mutyalamma, Puttalamma, and Vedula cheruvus.
 - **Cultural artifacts:** **Ruins of temples, pillared halls, and a mosque** are located within the premises. Recent archaeological findings include **Buddhist stupa remains dating** to the 1st or 2nd century CE.
- **Location:** It is located near Jamshedpur, in the **East Singhbhum district of Jharkhand**. It is situated around the Dalma Hills on the Chottanagpur Plateau.
 - **Nomenclature:** The Sanctuary gets its name from the "**Dalma mai**", a **local goddess** who is revered and worshipped by the local people and the people of adjoining villages of Dalma.
- **Establishment:** It was inaugurated in 1975 and **officially notified in 1976**.
 - **Terrain:** The terrain here is **hilly and rocky, with dense forests and grasslands**.
 - **Rivers:** The entire forest of Dalma Sanctuary falls in the catchment of the **Subarnarekha River and Dimna Lake** of Jamshedpur.
 - **Waterfalls:** It features two prominent waterfalls, **Sitaguldi and Dassam**.
 - **Temple:** A temple **dedicated to Lord Shiva**, known as the Dalma Temple, is inside the cover.
 - **Elephant corridor:** It is a **vital link in the traditional migration route to West Bengal** (Purulia district) during August–September, with herds returning by January.

- **Vegetation:** The forests of Dalma come under the category **Dry peninsular Sal and Northern dry mixed deciduous forest**. Most of the Dalma forests shed leaves in the summer and attain their full bloom at the onset of monsoon.
- **Flora:** Medicinal plants like **Ananatmula, Satawari, Sarpghandha**, etc. are abundant in the sanctuary. Various types of trees, climbers, herbs, shrubs, and orchids are found here.

Fauna: Besides elephants, the sanctuary has a considerable population of other wildlife like **barking deer, wild boar, giant squirrel, porcupine, pangolin, sloth bear**, etc. Commonly seen birds in the sanctuary are falcons, golden orioles, Indian tree pies, paradise fly catchers, grey hornbills, Indian peafowl, etc.

DISTRIBUTION OF FREEBIES

In 'Tamil Nadu Power Distribution Corporation Limited v. Union of India' case, court stated that without drawing any distinction between beneficiaries, freebies would **hamper the long-term economic development**.



About freebies

- RBI defined freebies as “a **public welfare measure** such as that is provided free of charge”.
- As per RBI, freebies can be **distinguished from public or merit goods** such as education which have wider and long-term benefits.

Concerns related to freebies

- **Fiscal Burden:** Combined gross fiscal deficit of States rose from 2.6% of GDP in FY22 to 3.2% in FY25. (Economic Survey 2025-26)

- **Derails Development:** Instead of investing in infrastructure and job creation, money is spent on short-term gains. (Economic Survey 2025-26)
- **Undermines Sustainability:** E.g., CAG report flagged free electricity to groundwater depletion (Punjab Case).
- **Weakens Institutions:** E.g., Loan waivers & free power weaken banks, DISCOMs.

Way forward

- **Subramaniam Balaji v. Tamil Nadu (2013):** States should work to open avenues for employment (welfare) instead of giving non-merit freebies.
 - The judgment stated that Freebies cannot be considered bribery or corruption and courts cannot tell the government how to spend public money.
- **Election Commission of India (ECI):** Via orders of 2014 and 2022, it required political parties to explain the rationale and funding mechanisms behind their promises.
- **Economic Survey 2025-26:** Deliver more durable gains in incomes and productivity than an ever-expanding set of open-ended transfers.
 - E.g., Cash transfers linked to school attendance and health check-ups in Mexico's Progresá or Brazil's Bolsa Família.

WARNING LABELS ON PACKAGED FOODS

The Supreme Court has directed FSSAI to consider mandatory front-of-package (FoP) warning labels on packaged foods high in sugar, salt and saturated fat amid rising non-communicable diseases (NCDs) in India.

- India currently records 101 million diabetics and 35.5% hypertension prevalence (ICMR-INDIAB 2023), with ultra-processed food consumption identified as a key dietary risk factor.
- Existing back-of-pack labelling under the Food Safety and Standards (Labelling and Display) Regulations, 2020 remains technical and poorly understood by consumers.

The Supreme Court Asks FSSAI To Consider Front-of-pack Warning Labels On Foods High In Sugar, Salt, And Fat



The Court noted that front-of-pack labelling is a globally accepted practice and asked the FSSAI to report back in four weeks

- **Information Asymmetry:** Complex nutritional labels create consumer disadvantage, limiting informed dietary choice and perpetuating unhealthy consumption.
- **Economic Costs:** NCD-related productivity losses and high out-of-pocket expenditure strain both household finances and public health systems.

Regulatory and Policy Measures

- **Labelling and Display Regulations, 2020:** FSSAI operationalised revised labelling norms mandating declaration of total sugar, added sugar, saturated fat, and sodium per serving and per 100g/ml.
- **Front-of-Pack Labelling Consultation (2023-26):** An expert committee was constituted to examine FoP labelling models, including “Indian Nutrition Rating (INR)” proposals and warning label formats, with stakeholder consultations underway.
- **Trans-Fat Elimination (2022):** India achieved WHO’s recommended limit of <2% industrial trans-fat in oils and fats, aligning with the global “REPLACE” action framework.
- **High Fat, Sugar and Salt (HFSS) Guidelines in Schools (2020, revised 2023):** FSSAI restricted sale and advertisement of HFSS foods within 50 metres of school premises and promoted “Eat Right School” certification.
- **Front-of-Pack Logo for Millets (2023):** Introduction of “Shree Anna” branding to promote healthy grain alternatives under the International Year of Millets.
- **Fortification Regulations:** Strengthening mandatory fortification standards for staples like rice, wheat flour, edible oil and milk to combat micronutrient deficiencies.
- **Eat Right India Movement:** Nationwide behavioural campaign promoting safe, healthy and sustainable diets, including “Clean Street Food” and “Eat Right Campus” initiatives.
- **Nutrient Profiling Discussions:** Ongoing deliberations on adopting a science-based nutrient profiling system consistent with WHO-SEARO recommendations for regulatory enforcement.

Harmful Effects

- **Diabetes Burden:** High added sugar intake is strongly associated with India’s 101 million diabetes cases and 136 million prediabetics, escalating long-term cardiovascular and renal complications.
- **Hypertension Risk:** Excess sodium consumption contributes to 35.5% hypertension prevalence, increasing stroke and heart disease mortality.
- **Obesity Epidemic:** Ultra-processed foods drive abdominal obesity (39.5% prevalence), a precursor to metabolic syndrome and NCD clustering.
- **Cardiovascular Diseases:** Diets rich in saturated and trans fats elevate LDL cholesterol (24% high cholesterol prevalence), worsening coronary artery disease incidence.
- **Childhood Vulnerability:** Aggressive marketing of high-fat, high-sugar foods to children entrenches unhealthy dietary patterns and early-onset obesity.

Steps Needed

- **Mandatory Warning Labels:** Introduce simple, colour-coded or “high in” warning labels aligned with WHO nutrient thresholds to enable quick consumer recognition.
- **Scientific Regulatory Standards:** Ensure FSSAI adopts globally accepted nutrient profiling models instead of diluted or industry-influenced rating systems.
- **Fiscal Measures:** Impose higher taxes on sugar-sweetened beverages and ultra-processed foods to discourage excessive consumption.
- **Marketing Restrictions:** Ban or strictly regulate advertising of unhealthy foods to children across digital and broadcast media platforms.
- **Public Awareness Campaigns:** Launch nationwide nutrition literacy drives to build consumer capacity to interpret food labels effectively.
- **Integration with Primary Care:** Embed dietary risk screening and counselling in Ayushman Bharat Health and Wellness Centres for early prevention.
- **Continuous Monitoring:** Institutionalise periodic dietary surveys and impact evaluations to assess the effectiveness of labelling reforms.

Front-of-package labelling is a preventive public health intervention aimed at correcting India’s unhealthy food environment.

- Without complementary reforms in taxation, marketing regulation and consumer awareness, labelling alone will not curb the NCD surge.
- Strengthening food governance is essential to protect human capital, reduce health expenditure and sustain long-term economic growth.

BEE CORRIDORS

Recently, National Highways Authority of India (NHAI) announced a first-of-its-kind initiative to develop pollinator or bee corridors along National Highways.



About Bee Corridors:

- **Nature:** Bee Corridors are **linear stretches of pollinator-friendly vegetation developed along National Highways.**
 - **Composition:** They will consist of **flowering trees and plants that provide year-round nectar and pollen support** to honeybees and other pollinators.
 - **Objective:** It aims to **reduce ecological stress on pollinators** and ensure sustained availability of nectar sources, thereby strengthening agricultural productivity and ecological balance through climate-sensitive highway plantation planning.
 - **Scientific design:** **Flowering plants will be strategically placed at intervals matching the foraging range of bees (500 metres to 1 km).**
 - **Species selection:** Native species like **Neem, Karanj, Mahua,** and others will be utilized.

- **Staggered flowering:** The selection ensures **continuous food availability** by using plants that bloom at different times.
- **Habitat conservation:** The project incorporates **natural elements for nesting, such as flowering weeds and dead wood.**

Significance:

- **Pollinator conservation:** It aims to **combat the decline of pollinator populations.**
 - **Agricultural productivity:** The corridors can **boost crop yields** for nearby farms.
- **Ecological balance:** The initiative helps connect fragmented habitats and **enhance biodiversity.**
- **Sustainable infrastructure:** It aligns highway development with **Sustainable Development Goals and climate resilience.**

AVGC Sector and Jobs Potential

Sitharaman highlighted that India’s Animation, Visual Effects, Gaming, and Comics sector is expanding rapidly and is projected to require around 2 million professionals by 2030.

The AVGC industry is increasingly seen as a key source of high-quality creative employment, driven by growth in digital media, gaming, streaming platforms, and global demand for content production services.

Content Creator Labs in Schools and Colleges

To build a strong talent pipeline, the Finance Minister proposed support for the Indian Institute of Creative Technologies to set up AVGC Content Creator Labs in 15,000 secondary schools and 500 colleges across the country.

These labs are expected to provide early exposure to animation, gaming, visual effects, and digital storytelling, helping students acquire industry-relevant skills and encouraging entrepreneurship, startups, and creator-led businesses.

ORANGE ECONOMY

Union Finance Minister Nirmala Sitharaman has announced a major push for India’s creative industries, described as the “orange economy”, in the Union Budget 2026.

The proposals focus on building future-ready creative skills and jobs, especially in fast-growing digital and design-led sectors, as part of India’s broader employment and innovation strategy.

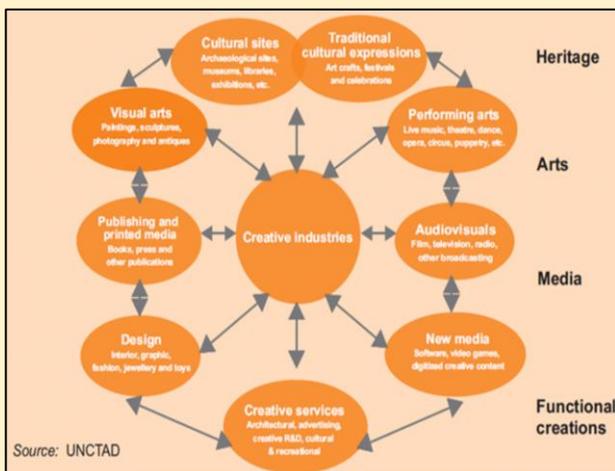
Orange Economy and Economic Survey Insights

The Economic Survey 2025-26 has identified creativity-led sectors such as culture, media, entertainment, and intellectual property as emerging drivers of employment, urban services, and tourism.

Termed the “orange economy”, these activities derive value primarily from ideas, artistic expression, and cultural capital. The Survey also flagged the growing potential of the concert economy, while noting challenges such as venue shortages and regulatory hurdles that need to be addressed for scale.

Important Facts for Exams

- AVGC stands for Animation, Visual Effects, Gaming, and Comics.
- Orange economy refers to creativity-led sectors based on ideas and culture.
- Content Creator Labs proposed in 15,000 schools and 500 colleges.
- AVGC sector projected to need about 2 million professionals by 2030.

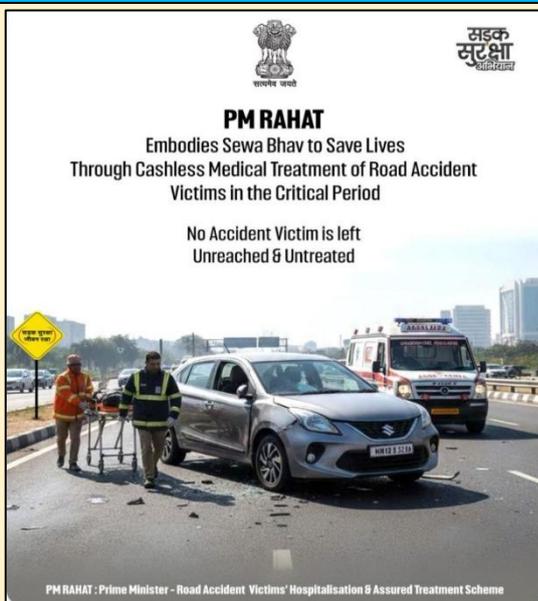


Design Education Expansion in Eastern India

In addition to AVGC initiatives, Sitharaman announced the establishment of a new National Institute of Design in eastern India. She noted that while India's design industry is growing rapidly, the country faces a shortage of trained designers.

The new institute is expected to strengthen design education, support regional development, and complement the broader push to position creative and design-led industries as engines of sustainable employment growth.

PM RAHAT SCHEME



Recently, Prime Minister Narendra Modi approved the launch of the PM RAHAT (Road Accident Victim Hospitalisation and Assured Treatment) Scheme.

About PM RAHAT Scheme:

- **Full form:** It stands for **PM RAHAT (Road Accident Victim Hospitalisation and Assured Treatment)** Scheme.
- **Nature:** It has prioritized life-saving intervention, financial certainty for hospitals, and a **structured emergency response system for accident victims**.
- **Objective:** It aims to **reduce mortality by ensuring treatment during the "Golden Hour"** (the first hour after an accident), which can prevent nearly 50% of road accident deaths.

- **Nodal ministries:** It is a collaborative effort between the **Ministry of Road Transport and Highways (MoRTH)** and the **Ministry of Health and Family Welfare (MoHFW)**.
 - **Coverage period:** Treatment is covered for a **maximum of 7 days** from the date of the accident.
- **Stabilization:** It includes stabilization treatment for 24 hours in non-life-threatening cases and **up to 48 hours in life-threatening cases**.
 - **Incentive:** To encourage **"Good Samaritans"** (now termed **Rahveers**), the government provides a **cash reward of ₹25,000 and a certificate** for those who transport victims to hospitals.
 - **Integration:** It will be integrated **with the Emergency Response Support System (ERSS)** enabling victims, Good Samaritans to dial 112 to locate the nearest designated hospital and request ambulance assistance.
- **Cashless treatment:** Under the Scheme, every eligible road accident victim on any category of road will be entitled to cashless treatment **up to ₹1.5 lakh per victim**.
- **Implementation:** It is implemented through amalgamating the **Electronic Detailed Accident Report (eDAR) platform** of the Ministry of Road Transport and Highways with the **Transaction Management System (TMS 2.0)** of the National Health Authority.
- **Reimbursement:** The reimbursement to the hospitals will be made through the **Motor Vehicle Accident Fund (MVAFF)**, established under the Motor Vehicles (Amendment) Act, 2019.
- **Insured and uninsured vehicles:** In cases where the offending vehicle is insured, payment will be drawn from **contributions made by General Insurance Companies**. In uninsured and Hit & Run cases, payment will be made through **budgetary allocation** by the Government of India.
- **Grievance redressal:** Grievances will be addressed by a **Grievance Redressal Officer nominated by the District Road Safety Committee chaired by the District Collector or District Magistrate**.

SANGTAM TRIBE

The apex body of Nagaland's Sangtam tribal community has passed a resolution to protect pangolins, the world's most trafficked wild mammal, within its jurisdiction.



About Sangtam Tribe:

- **Nature:** The Sangtam is one of the 16 major Naga tribes of Nagaland. They are one of the **major Naga ethnic groups in Northeast India.**
- **Location:** They are concentrated in the **Kiphire and Tuensang districts of Nagaland**, bordering Myanmar.
- **History:** Oral traditions suggest ancestors **migrated from Mongolia** through China (possibly linked to the Great Wall) before settling in present-day Nagaland.
- **Heritage:** The **Morung (communal dormitory)** remains a vital symbol of their culture and heritage, though it has evolved from a training ground to a symbolic cultural centre.
- **Religion:** While **predominantly Christian**, many Sangtams have uniquely retained traditional beliefs and animist roots.
- **Clans:** There are **six major clans** amongst the Sangtams- Dhongrü, Jingrü, Langtidhongrü/ Langkidhongrü, Mungzarü, Anarü/Yingphidhongrü and Rudidhongrü clans.
- **Language:** The common dialect of the Sangtams is known as **Sangtamyu** which is spoken by around 90% of the population.
- **Economy:** The Sangtam people traditionally practice **jhum cultivation** (shifting agriculture), which remains central to their livelihood.

- **Society:** They follow a **patriarchal system of lineage** and inheritance as well.
- **Governance:** The society is **egalitarian and governed by strong village councils** and the apex tribal body, the United Sangtam Likhum Pumji (USLP).
- **Festivals:** **Mongmong, their premier festival**, is celebrated from September 1-6 to mark the harvest. It involves worshipping the "God of the House" and the three cooking stones of the fireplace. **Hünapungbi** is another festival dedicated especially to children.

BHAKRA DAM

Amid rising incidents of landslides, a comprehensive geological study of the hillocks surrounding the Bhakra Dam is to be undertaken by the Geological Survey of India.



About Bhakra Dam:

- **Location:** It is located at a gorge near the upstream Bhakra village in the **Bilaspur district of Himachal Pradesh**. It is near the border between Punjab and Himachal Pradesh.
- **River:** It is a concrete gravity dam across the **Sutlej River**.
 - **Uniqueness:** It is the **highest straight gravity dam in the world**, with a height of about 207.26 meters. It is **Asia's second tallest dam**, next to the 261 m Tehri Dam, also in India.
 - **History:** The Bhakra Dam is **one of the earliest river valley development schemes** undertaken by India after independence.

- **Construction:** The construction of this dam **started in 1948**, when Jawahar Lal Nehru, the first prime minister of India, poured the first bucket of concrete into the foundations of Bhakra.
- **Completion:** The dam was completed by the **end of 1963**.
 - **Other names:** Bhakra Dam was described as the **'New Temple of Resurgent India'** by Jawaharlal Nehru.
- **Management:** Operation and maintenance of the Bhakra dam is done by the **Bhakra Beas Management Board (BBMB)**.
 - **Reservoir:** The dam created the massive **Gobind Sagar reservoir** and plays a crucial role in irrigation, flood control, and hydroelectric power generation for Punjab, Haryana, Rajasthan, Himachal Pradesh, and Chandigarh.
- **Area and storage of reservoir:** The 90 km long reservoir is spread over an **area of 168.35 sq.km**. In terms of storage of water, it is the **second largest reservoir in India**, the first being Indira Sagar Dam in MP with a capacity of 12.22 billion cu m.
- **Powerhouse:** The installed capacity of Bhakra Right Bank Power House is **785 MW**, and that of Bhakra Left Bank Power House is **630 MW**.

- **Objective:** It aims to develop an appropriate mechanism for **coordination between various ministries** in India and implement support policies for **overall growth of the medicinal plants sector** both at the Central/State and International level.



- **Focus:** It focuses on development of the medicinal plants sector through developing a strong coordination between various ministries for **implementation of policies on medicinal plants**.
 - **Structure:** It is supported by 36 **State Medicinal Plant Boards (SMPBs)** and seven **Regional Cum Facilitation Centres (RCFCs)** across the country.
 - **Conservation:** It focuses on **both in-situ (in natural habitats) and ex-situ (nurseries, herbal gardens)** conservation of medicinal and aromatic species.
- **Cultivation and support:** It provides **financial assistance and subsidies** (ranging from 30% to 75%) for the cultivation of 140 **prioritized medicinal plants**.
- **Research and development:** It funds projects for identifying, inventorising, and quantifying medicinal plants, as well as developing **agro-technologies for their sustainable use**.
 - **Standardization:** It develops **Good Agricultural and Collection Practices (GACPs)**, which are **recommended by the WHO** to ensure the quality, safety, and efficacy of herbal materials.

NATIONAL MEDICINAL PLANTS BOARD (NMPB)

The National Medicinal Plants Board (NMPB), under the Ministry of Ayush organised a one-day Chintan Shivir at Vigyan Bhawan in New Delhi.

About National Medicinal Plants Board:

- **Establishment:** It was set up on **November 24, 2000**, by the Government of India.
- **Nodal ministry:** It functions as a section within the **Ministry of AYUSH**(Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy).

- **Awareness:** It promotes the creation of **Home/School Herbal Gardens** and launched initiatives like the **Professor Ayushman Comic Book** to educate children about traditional medicine.
- **Patent rights:** It encourages the protection of patent rights and **Intellectual Property Rights (IPR)**. It also focuses on identification, inventorisation and quantification of medicinal plants.

Major initiatives:

- **National AYUSH Mission (NAM):** Under NAM, the board supports **market-driven production of prioritized medicinal plants** in specified clusters.
- **Digital platforms:** Launched the **e-CHARAK** (e-Channel for Herbs, Aromatic, Raw material and Knowledge) mobile app and web portal to facilitate market linkages for stakeholders.

- **Origin:** Aconcagua is of **volcanic origin, but it is not itself an active volcano.**
- **Formation:** The Mountain was formed when the **heavier Nazca Plate dived beneath the South American Plate** through a process known as subduction.
- **Nature:** It is a **folded mountain** composed of sedimentary and metamorphic rock.
- **Boundary:** It is one of the mountains in the Principle Cordillera, a mountain range in the Andes making up the boundary **between Argentina and Central Chile.**
- **Seven summits:** It is considered as **one of the world’s “Seven Summits”** (each of the seven tallest mountains in each continent).
- **Climate Zones on the mountain:** Dry and **desert-like with sparse vegetation, Alpine desert zone** and arctic conditions at the top.
- **Glaciers:** The mountain also contains glaciers, of which **Ventisquero Horcones Inferior** is the largest.

MT ACONCAGUA

Recently, the Defence Minister flagged off a joint mountaineering expedition to Mount Aconcagua in Argentina from New Delhi.



About Mt Aconcagua:

- **Location:** It is located in **Argentina** (near the border with Chile).
- **Uniqueness:** It is the **highest mountain in South America** and the tallest mountain outside of Asia.

GULF COOPERATION COUNCIL (GCC)

Recently, India and the Gulf Cooperation Council (GCC) have signed the Terms of Reference for a Free Trade Agreement in New Delhi.



About Gulf Cooperation Council:

- **Establishment:** It is a **regional political and economic alliance** established in 1981.
- **Members:** The member countries include **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE).**

- **Objective:** It aims to foster economic, security, cultural, and social cooperation among its members. This cooperation is based on common Islamic values, tribal links, and mutual security and development goals.
- **History:** It was formed in response to escalating regional tensions, particularly the Iranian Revolution (1979) and the Iran-Iraq War (1980-1988).
- **Headquarters:** Its headquarters is located in Riyadh, Saudi Arabia.
- **Significance:** GCC countries are located strategically along the Persian Gulf, linking Europe, Asia, and Africa through maritime routes. Further, the bloc controls around 30% of global oil reserves and is a major exporter of natural gas.
- **Organizational Structure:** Supreme council is the highest authority of the GCC, composed of the heads of the member states. Ministerial council is composed of foreign ministers or their representatives from member states. It proposes policies and implements decisions of the Supreme Council.
- **Key exports and imports from India:** Key exports from India to GCC include engineering goods, rice, textiles, machinery, gems and jewelry. Key sectors of imports from GCC primarily comprise crude oil, LNG, petrochemicals, and precious metals such as gold.

G7 SUMMIT

French President Emmanuel Macron recently invited Prime Minister Narendra Modi to the 52nd G7 Summit, which will be presided over by France in 2026.



The 52nd G7 Summit is a scheduled annual summit to be held on 14-16 June 2026 in Évian-les-Bains, Haute-Savoie, France.

About G7 Summit:

- **Nature:** The G7 (Group of Seven) is an informal forum of the world's most advanced economies such as US, UK, France and Germany.
- **Origin:** It was established in 1975 (as G6) in response to the 1973 oil crisis and global financial instability.
- **Evolution:** Canada joined in 1976 to form the G7. It became G8 in 1997 with the inclusion of Russia, but reverted to G7 in 2014 after Russia's expulsion over the annexation of Crimea.
- **Significance:** It consists of 40% of the global economy and represents 10% of the world's population.
- **Member countries:** Present member countries include Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The European Union (EU) participates as a "non-enumerated member" and attends all working sessions but does not hold the rotating presidency.
- **Role of India:** India is not a member but has been a regular "Outreach" partner since 2019. India uses the forum to represent the interests of developing nations, particularly on debt relief and climate finance.

KERALA STATE CIVIL SERVICE ACADEMY
Established under Centre for Continuing Education Kerala (CCEK)

NURTURING YOUNG MINDS TOWARDS TOMORROW'S CIVIL SERVICE

COURSES

- **Prelims Cum Mains Regular Batch**
Course Fee : ₹ 49,200 (₹ 40,000 - 18% GST ₹ 7,200 - Caution Deposit ₹ 2,000)
- **Prelims Cum Mains Weekend Batch**
For the Working Professionals & students who are doing their UG/PG
◆ Course Fee: Ongoing Degree/PG Students: ₹ 41,300 (₹ 35,000 - 18% GST ₹ 6,300)
◆ Course Fee: Working Professionals : ₹ 49,200 (₹ 40,000 - 18% GST ₹ 7,200 - Caution Deposit ₹ 2,000)
- **Civil Service Foundation Course**
For Higher Secondary School Students
Course Fee: ₹ 5,900 (₹ 5,000 - GST ₹ 900)
- **Talent Development Course**
For High School Students
Course Fee: ₹ 4,720 (₹ 4,000 - 18% GST ₹ 720)

SCAN TO JOIN



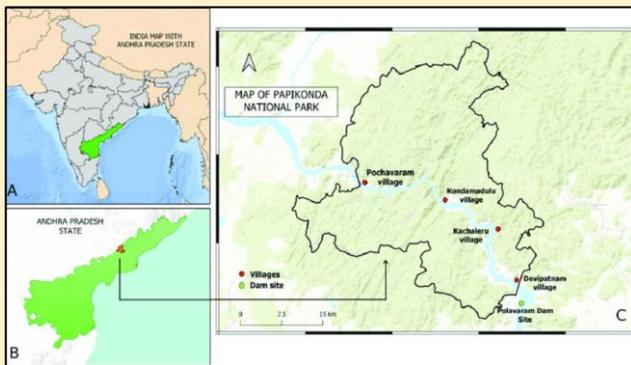
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 KOTTAYAM: 8281098863 || ERNAKULAM: 8281098873 || IDUKKI: 8281098863 || THRISSUR: 8281098874 || PALAKKAD:
 8281098869 || Ponnani: 8281098868 || Kozhikode: 8281098870 || WAYANAD: 9496610543 || KALLIASSERY: 8281098875
 KASARAGOD: 8281098876

- **Informal grouping:** It has **no permanent secretariat** or legal status; its decisions are non-binding but carry significant political weight.
- **Rotating Presidency:** Each member hosts and **leads discussions in turn**.
- **Decisions:** It has **no binding laws** (no legislative authority), **but significant global influence** due to members' economic and political strength.

PAPIKONDA NATIONAL PARK (PNP)

The adult male tiger, named 'Explorer', was reintroduced into the wild in the Papikonda National Park (PNP) in Andhra Pradesh as part of Operation Stripes.



About Papikonda National Park:

- **Location:** It is located in the **East Godavari and West Godavari Districts of Andhra Pradesh**.
- **Area:** It is the **largest national park in Andhra Pradesh**, spanning approximately **1,012.86 sq km**.
- **Establishment:** Initially declared a reserved forest in 1882 and a wildlife sanctuary in 1978, it was upgraded to a **National Park in 2008**.
 - **Associated river:** Situated in the northern Eastern Ghats, it is **bisected by the Godavari river**, which cuts through the Papikonda hill range, creating a rugged landscape of steep slopes and deep valleys.
 - **Terrain:** It encompasses a **rugged landscape with steep slopes, hills, and deep valleys**.

- **Mountains:** There are **62 named mountains** in the park. Devara Konda is the highest point. The **most prominent mountain is Verala Konda**.
- **Significance:** It has been recognized as an **Important Bird and Biodiversity Area (IBA)** by BirdLife International.
- **Vegetation:** The park is characterized by **tropical, moist deciduous forests** mixed with patches of semi-evergreen and dry deciduous forests.
- **Flora:** The park is home to several types of trees, including **teak, rosewood, sandalwood, bamboo, eucalyptus, sal, mahua, pterocarpus, terminalia, and cassia**.
- **Fauna:** These include **Bengal tiger, Indian leopard, sloth bear, and Indian wild dog (dhole), gaur (Indian bison), sambar deer, spotted deer (chital), mouse deer, barking deer, four-horned antelope, and Indian giant squirrel**.
- **Uniqueness:** A unique **dwarf breed of goat known locally as the "kanchu mekha"** originates in this region.

- **Tribes:** It is primarily inhabited by the **Konda Reddi and Koya tribes**, who are recognized as **Particularly Vulnerable Tribal Groups (PVTGs)**.
- **Concern:** The ongoing construction of the **Polavaram multi-purpose irrigation project** on the Godavari River poses a significant threat, as the reservoir's backwaters are expected to submerge parts of the park and displace several tribal villages.

CHENNAKESHAHA TEMPLE

The Prime Minister's new office complex, Seva Teerth has been built in the Indian architectural tradition inspired by the features of the Chennakeshava Temple.



About Chennakeshava Temple:

- **Location:** The Chennakeshava Temple is a 12th-century temple, situated on the banks of the Yagachi River in Belur (ancient Velapura), **Hassan district, Karnataka.**
- **Other names:** It is also referred to as the **Keshava, or Vijayanarayana Temple of Belur.**
 - **Deity:** It is dedicated to **Lord Vishnu** as Chennakeshava (meaning "Handsome Keshava").
 - **Commissioning:** It was commissioned by **King Vishnuvardhana** in **1117 CE** (after a major military victory in 1116 CE over the Cholas in the great battle of Talakkad), on the banks of the Yagachi River in Belur, also known as Velapura.
 - **Construction:** The temple was built **over three generations** and took 103 years to complete.
- **Significance:** The temple is listed as a **UNESCO World Heritage Site.**
 - **Architecture type:** It is a stunning example of **Hoysala architecture.**

- **Material:** It is built using **Soapstone (Chlorite Schist)**, which is soft when quarried and hardens over time, allowing for extremely intricate carvings.
- **Stellate plan:** The temple is built on a raised platform called a Jagati that **follows a star-shaped layout**, providing more exterior surface area for sculptures.
- **Intricate carvings:** The exterior walls feature horizontal friezes depicting elephants (strength), lions (courage), horses (speed), and **mythological scenes from the Ramayana, Mahabharata, and Puranas.**
 - **Madanikas/Salabhanjikas:** It is famous for **42 bracket figures portraying graceful women in various poses** (e.g., Darpana Sundari or "Lady with a Mirror"), which are hallmarks of Hoysala art.
 - **Pillars:** It features unique **lathe-turned pillars** that are highly polished and intricately decorated
- **Stepped well:** One of the unique features of the Chennakeshava Temple is the stepped well, which is **located in the temple complex.**

STARTUP INDIA FUND OF FUNDS 2.0

Recently, the Union Cabinet chaired by the Prime Minister of India approved the establishment of the Startup India Fund of Funds 2.0 (Startup India FoF 2.0).



About Startup India Fund of Funds 2.0:

- **Nature:** It is launched **under the Startup India initiative**. Building on the foundation laid by the original 2016 scheme, FFS 2.0 introduces a targeted, segmented approach.
- **Objective:** It is designed to **accelerate the next phase of India's startup journey** by mobilising long-term domestic capital, strengthening the venture capital ecosystem, and supporting innovation-led entrepreneurship across the country.
- **Monitoring Agency:** It is monitored by **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce & Industry and it is operated by **Small Industries Development Bank of India (SIDBI)**.
 - **Investment model:** It is a "Fund of Funds," meaning it does not invest directly in startups. Instead, it **contributes to the corpus of SEBI-registered Alternative Investment Funds (AIFs)**, which then invest in startups.
 - **Multiplier Effect:** Supported AIFs are **required to invest at least twice the amount** of the FFS contribution into startups.
 - **Financial outlay:** A **total corpus of Rs. 10,000 crores** for the purpose of mobilizing venture capital for the startup ecosystem of the country.
 - **Innovative manufacturing:** It prioritises **breakthroughs in high-tech areas** that require patient, long-term capital.
 - **Empowering early-growth stage founders:** It provides a **safety net for new and innovative ideas**, reducing early-stage failures caused by lack of funding.
 - **National reach:** It encourages **investment beyond major metros** so that innovation thrives in every corner of the country.

- **Address high-risk capital gaps:** It directs greater capital to priority areas which are important for **self-reliance and boosting economic growth**.
- **Boosts investment landscape:** It **strengthens India's domestic venture capital base**, particularly smaller funds to further boost the domestic investment landscape.

DORNIER 228 AIRCRAFT

Recently, the Defence Ministry signed a contract with Hindustan Aeronautics Limited, Transport Aircraft Division, Kanpur, for the acquisition of eight Dornier 228 Aircraft.



About Dornier 228 Aircraft:

- **Nature:** It is a highly versatile **multi-purpose light transport aircraft**.
- **Objective:** It has been developed specifically to **meet the manifold requirements of utility and commuter transport**, third level services and air-taxi operations, coast guard duties and maritime surveillance.
 - **Manufacturing:** Originally developed by Dornier GmbH (Germany); it is now license-produced in India by **Hindustan Aeronautics Limited (HAL)** at its Kanpur facility.
 - **Engine:** It is powered by a pair of **Garrett TPE331 turboprop engines** and has a supercritical wing that generates large amounts of lift at slow speeds.
 - **Special capability:** It possesses **Short Take-Off and Landing (STOL) capabilities**, allowing it to operate from short, semi-prepared, or grass runways in "hot and high" environments.

- **Capacity:** It is typically configured to carry up to 19 passengers or equivalent cargo.
- **Specialisation:** The STOL capabilities allows it to operate from unprepared, unpaved, and grass surfaces and specialize in hot and high environments.
- **Design:** It has the unique design of the TNT wing, capable of generating large amounts of lift at slow speeds.
- **Reliability:** It is typically promoted for its versatility, low operational costs, and high levels of dispatch reliability.

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BIO-BASED CHEMICALS

India has prioritised bio-based chemicals and enzymes as a priority area under the Department of Biotechnology’s BioE3 policy.

About Bio-Based Chemicals:

- **Definition:** Bio-based chemicals are industrial chemicals produced using biological feedstocks like sugarcane, corn, starch, or biomass residues.
- **Production:** These are often produced through fermentation or enzymatic processes.
 - **Examples:** These include organic acids (such as lactic acid), bio-alcohols, solvents, surfactants, and intermediates used in plastics, cosmetics, and pharmaceuticals.



- **Difference with conventional chemicals:** Unlike conventional chemicals, for which the largely available supplies are obtained through sources of fossil fuel, bio-based alternatives reflect a sustainable solution.
 - **Drop-in:** These are chemically identical to fossil-based versions (e.g., Bio-PET) and usable in existing infrastructure.
 - **Novel:** These offer new functionalities not possible with petrochemicals (e.g., certain bioplastics like PLA).

Ecological Benefits:

- **Reduced reliance on fossil fuels:** The bio-based industry reduces reliance on fossil fuels by applying renewable feedstocks.
 - **Low production of harmful byproducts:** Biobased methods generate much lower amounts of hazardous waste than the conventional petroleum-based methodologies.

- **Reduced carbon footprint:** The production of biochemicals generally requires less energy than their corresponding petroleum-based equivalents.
 - **Waste minimization and circular economy:** With bio-based chemicals mostly coming from organic waste resources, development of the circular economy will be based on recycling, efficiency in the use of resources.
- **Challenges and Risks:**
 - **Cost disadvantage: Higher production cost** compared to petrochemical alternatives, which creates an entry level barrier.
 - **Feedstock: availability of reliable feedstocks** and supporting infrastructure required to produce different categories of bio-based chemicals at scale.
 - **Market adoption: Uncertainty about adapting bio-based chemicals** as substitutes over fossil fuel-based chemicals.

Strategic significance for India:

- **Import substitution:** India imported approximately \$480 million worth of acetic acid in 2023. Shifting to bio-alternatives reduces reliance on costly petrochemical imports.
- **Climate goals:** These chemicals generally have a lower carbon footprint and contribute to a **circular bioeconomy** by using waste as feedstock.
- **Industrial efficiency:** Many bio-based processes use enzymes which **operate at lower temperatures and pressures**, significantly reducing energy consumption.
 - **Rural growth:** Creates new markets for agricultural produce and crop residues, potentially boosting rural income.

WHITE-BELLIED SEA EAGLE



Recently, the annual nest monitoring survey of the White-bellied Sea Eagle recorded 17 active nesting sites in Kannur and Kasaragod districts during this season.

About White-Bellied Sea Eagle:

- **Nature:** It is a large diurnal bird of prey in the family Accipitridae.
- **Scientific name:** Its scientific name is **Haliaeetus Leucogaster**.
- **Other names:** It is also known as the **white-breasted sea eagle**.
- **Appearance:** Adults feature a distinctive white head, neck, and underparts with dark grey/brown wings and a short wedge-shaped tail.
- **Habitat:** It lives primarily in **terrestrial habitats near the ocean, especially coasts, islands, and estuaries**, but also live in forested areas with access to smaller bodies of water.
- **Distribution:** It is found in **India, Sri Lanka, Andaman Island, southern China, the Philippines, Wallacea, New Guinea, Australia, and Tasmania**, among other countries.
- **Uniqueness:** It exhibits **sexual dimorphism**, with females being slightly larger than males (wingspan of females reaching up to 2.2 meters).
- **Communication:** The primary form of communication in white-bellied sea eagles is **vocalizations**.
 - **Diet:** They are **carnivorous and primarily prey on aquatic animals**, especially fish, eels, and crustaceans.

About Ol Chiki Script:

- **Invention:** The Ol Chiki script was invented by **Pandit Raghunath Murmu (revered as Guru Gomke) in 1925** to provide a distinct script for the Santhali language, which was previously written in Roman, Devanagari, Oriya, or Bengali scripts.
- **Phonetic Nature:** It is a fully phonetic, alphabetic script where **each symbol corresponds to a specific sound**.
- **Structure:** It consists of **30 letters** (6 vowels and 24 consonants) and is **written from left to right**.
 - **Scientific Design:** It accurately represents **unique phonetic elements like glottal stops**, which borrowed scripts struggled to capture. The characters are inspired by nature and daily objects (e.g., animals, hills, rivers).
- **Family:** The Ol Chiki script accurately represents glottal stops and specific vowel patterns inherent to Santhali, which belongs to the **Austroasiatic language family**.
- **Geographic Reach:** It is the primary medium for Santhali speakers across **Jharkhand, Odisha, West Bengal, Bihar, and Assam**.
 - **Literary Milestone:** The **first book in Ol Chiki, High Serena (1936)**, and works like Bidu-Chandan reflect Santhali culture and identity.
- **Constitutional Status:** The Santhali language, written in Ol Chiki, was included in the **Eighth Schedule** of the Constitution of India through the **92nd Constitutional Amendment Act in 2003**.
- **Democratic Accessibility:** In a landmark move for linguistic justice, the **Constitution of India was translated into Santhali using the Ol Chiki script** in December 2025.

AYUSHMAN SAHAKAR SCHEME

Recently, the Union Minister for Home and Cooperation informed the Rajya Sabha about the Ayushman Sahakar Scheme.

About Ayushman Sahakar Scheme:

- **Nodal Agency:** It is a scheme of the **National Cooperative Development Corporation (NCDC)** for financial assistance to cooperatives on holistic healthcare infrastructure, education and services.



REVOLUTIONIZING INDIA'S RURAL HEALTHCARE SERVICES myGov

Agriculture Ministry Launches ₹10,000 Crore NCDC Ayushman Sahakar Fund

- Assist cooperatives in the creation of healthcare infrastructure in the country formulated by the National Cooperative Development Corporation
- The scheme specifically covers the establishment, expansion, renovation of hospital, healthcare & education infrastructure
 - Will encompass UG/PG programs of Medical/AYUSH/Dental/Nursing, etc, Yoga Wellness Centre & other traditional medicine healthcare centers
 - Will provide comprehensive healthcare services including services for the elderly, RCH, PwD, Mental healthcare, Mobile Clinic, Telemedicine, etc.
- The scheme provides interest subvention of 1% to women majority cooperatives

- **Ministry:** Originally launched under the Ministry of Agriculture and Farmers Welfare, it is now often associated with the newly formed **Ministry of Cooperation**.
- **Objectives:**
 - To assist provision of **affordable and holistic healthcare** through hospitals / healthcare / education facilities by cooperative societies,
 - To assist **promotion of AYUSH facilities** by cooperative societies
- To assist cooperative societies meet the objectives of **National Health Policy**,
- To assist cooperative societies participate in the **National Digital Health Mission**

- To assist cooperative societies provide **comprehensive healthcare including** education, services, insurance and activities related thereto.

Financial support: NCDC provides term loans **totalling up to ₹10,000 crore** for cooperative healthcare projects.

Eligibility: Any **cooperative society registered under State or Multi-State Cooperative Societies Acts** with healthcare provisions in its bye-laws is eligible for the scheme.

Special incentives: A **1% interest subvention** is provided to cooperatives where women members are in the majority.

Loan tenure: Loans are **typically for 8 years, including a moratorium of 1-2 years** on principal repayment, depending on the type of project and its ability to generate revenue.

Modernisation: It supports the modernisation of cooperative healthcare facilities. It also supports the **establishment of healthcare infrastructures** like clinics, diagnostics centres and hospitals.

- **Alignment with national policies:** It aligns with the **National Health Policy 2017** and the **National Digital Health Mission**.

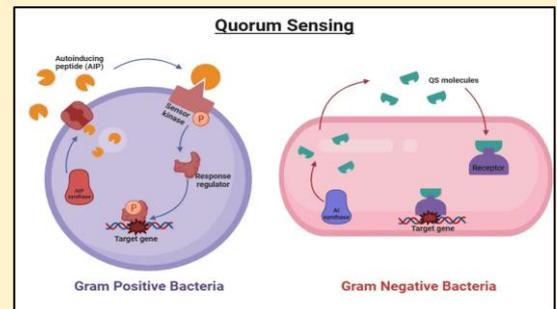
QUORUM SENSING

The phenomenon “quorum sensing” could indeed be a game changer for medicine, by opening new avenues to develop anti-quorum sensing therapies instead of antibiotics.

About Quorum Sensing:

- **Nature:** Quorum sensing is a **mechanism by which bacteria regulate gene expression** in accordance with population density through the use of signal molecules.

- **Functioning:** It allows **bacteria populations to communicate and coordinate group behaviour** and commonly is used by pathogens (disease-causing organisms) in disease and infection processes.
- **First observation:** Bacterial activity involving quorum sensing was first observed in the mid-1960s by **Hungarian-born microbiologist Alexander Tomasz** in his studies of the ability of **Pneumococcus** (later known as *Streptococcus pneumoniae*) to take up free DNA from its environment.



- **Pathway composition:** Standard quorum-sensing pathways consist of **bacteria populations, signal molecules, and behavioural genes**.
 - **Autoinducers:** The **signal molecules, known as autoinducers**, are secreted into the environment by bacteria and gradually increase in concentration as the bacteria population grows.
 - **Behaviour regulation:** After reaching a certain concentration threshold, the molecules become detectable to bacteria populations, which then activate corresponding response genes that regulate various behaviours, **such as virulence, horizontal gene transfer, biofilm formation, and competence** (the ability to take up DNA).
- **Significance:** Since many of these processes are effective only at certain population sizes, quorum sensing is a key behaviour-coordination mechanism in many microbes. It could indeed be a **game changer for medicine, by opening new avenues to develop anti-quorum sensing therapies instead of antibiotics**.

- **Variation:** Although quorum sensing is common among bacteria, the precise sensing system and **class of quorum-sensing compounds used may differ**. For example, the **bacterium Pseudomonas aeruginosa**, which can cause pneumonia and blood infections, uses quorum sensing to regulate disease mechanisms.
- **Use in other organisms:** In other organisms, quorum sensing is used for **sympiotic processes and cell growth**; an example is the nitrogen-fixation mechanism of the bacterium *Rhizobium leguminosarum*.

- **Habitat:** It is an **arboreal and diurnal creature**, they sleep at night in trees (typically, high in the canopy of rainforest).
- **Distinguishing feature:** These macaques are territorial and very communicative animals. One of the distinguishing features of this species is that **males define the boundaries of their home ranges by calls**.
- **Communication system:** Overall, their communication system is composed of as many as **17 vocalisations**.
 - **Diet:** It is **omnivorous** and feeds upon a wide variety of food, although fruits form the major part of their diet.
- **Conservation Status:**
 - **IUCN:** Endangered
 - **CITES:** Appendix I
 - **The Wildlife (Protection) Act, 1972:** Schedule I.

LION-TAILED MACAQUES

Researchers cautioned that the increase of lion-tailed macaques in human-dominated landscapes is driven largely by easy access to food associated with human presence.



About Lion-Tailed Macaques:

- **Nature:** It is an **Old World monkey**.
 - **Other names:** It is also known as the **'beard ape'** because of its mane.
- **Nomenclature:** The magnificent Lion-tailed macaque is named due to its **lion-like, long, thin, and tufted tail**.
- **Appearance:** They are characterised by the **grey mane around their face**.
 - **Uniqueness:** It is **one of the smallest macaque species** in the world.
 - **Distribution:** It is **endemic to evergreen rainforests** of the southern part in **Western Ghats**, with its range passing through the three states of Karnataka, Kerala and Tamil Nadu.

H-125 LIGHT UTILITY HELICOPTER

Recently, Prime Minister of India and French President inaugurated the Final Assembly Line of the Airbus H-125 Light Utility Helicopter, located at Vemagal, Karnataka.



India's first helicopter Final Assembly Line (FAL) in the private sector

'Make in India' programme for helicopters for India & export to neighbouring countries

Unrivalled in hot and high and extreme environments

Only helicopter to have landed on Mount Everest

Production of the first 'Made in India' H125 is expected to commence in 2026

The FAL in India will include:

- Integration of the major component assemblies
- Avionics and mission systems
- Installation of electrical harnesses
- Hydraulic circuits
- Flight controls
- Dynamic components
- Fuel system and the engine

H125 - a multi-mission workhorse, serving missions like:

- Passenger transport - Contributing to Government of India's vision for 'Ude Desh ka Aam Naagrik'
- Emergency medical services (EMS)
- Law enforcement
- Disaster management
- Aerial work

Helicopter capacity: Up to 6 passengers

Leading the single-engine helicopter market, the H125 is a member of Airbus' Ecureuil family, which has accumulated 38 million flight hours worldwide

Partnership between: **AIRBUS** and **TATA**

About H-125 Helicopter:

- **Nature:** It is a **single-engine light utility helicopter** from the legendary **Ecureuil family**. It is valued for its reliability, low maintenance and adaptability.
- **Uniqueness:** The H125 is the **only helicopter** in history to have **landed on the summit of Mount Everest**.
 - **Engine & design:** It is powered by a single **Safran Arriel 2D turboshaft engine**, featuring a dual-channel **FADEC** (Full Authority Digital Engine Control).

- **Uses:** It is capable of performing **diverse missions** including law enforcement, emergency medical services (EMS), firefighting, aerial filming, tourism, civil transport and high-altitude logistics.
- **High-Altitude Performance:** It can operate efficiently in **“hot and high” environments** – meaning high mountains or hot desert conditions.
- **Adaptability:** Its reliable engine and aerodynamics make it easier to maintain and **operate in varied conditions.**
- **Range:** With speeds up to around **252 km/h and a range of approximately 662 km**, it’s capable of covering long distances without compromising performance.
- **Significance to India:** It provides edge in high-altitude logistics, ensuring the delivery of vital supplies to remote frontline outposts, and serves as a **rapid-response asset for search and rescue or medical evacuation operations.**

INDIA-NETHERLANDS HYDROGEN FELLOWSHIP PROGRAMME

India and the Netherlands have strengthened their clean energy partnership with the launch of the India-Netherlands Hydrogen Fellowship Programme and the signing of a major academic cooperation agreement in green hydrogen research.

The initiative underscores the growing emphasis on international collaboration to accelerate India’s clean energy transition and build capacity in emerging hydrogen technologies.



Launch of the India-Netherlands Hydrogen Fellowship Programme

The fellowship programme was launched by “Abhay Karandikar”, Secretary of the “Department of Science and Technology”. It is a national capacity-building initiative open to eligible Indian doctoral candidates, postdoctoral researchers, and faculty members across institutions.

The programme focuses on structured exposure to advanced hydrogen ecosystems in the Netherlands to enhance India’s readiness for hydrogen deployment.

Focus Areas and Capacity Building Objectives

The fellowship places emphasis on system integration, safety standards, techno-economic analysis, life-cycle assessment, and indigenisation pathways.

According to DST, the design ensures that research outcomes directly support India’s clean energy priorities, particularly in hard-to-abate sectors. The programme aligns with national goals to move hydrogen technologies from research stages to scalable deployment.

Academic MoU With University of Groningen and IITs

DST also hosted the signing of an institution-to-institution Memorandum of Understanding between the “University of Groningen” and 19 Indian Institutes of Technology. The MoU establishes an enabling framework for long-term cooperation in hydrogen and green energy research. It provides for faculty and student exchanges, joint research initiatives, and structured knowledge sharing, without automatic financial commitments.

- Green hydrogen is produced using renewable energy sources with minimal carbon emissions.
- The Netherlands is a key European hub for hydrogen infrastructure and port-based energy systems.
- India’s National Green Hydrogen Mission aims to make India a global production hub.
- Academic MoUs often enable collaboration without direct financial obligations.

Strategic Alignment With India's Energy Goals

The high-level engagement highlighted alignment with India's National Green Hydrogen Mission, Energy Independence 2047, and Net-Zero 2070 objectives. Dutch Deputy Ambassador "Huib Mijnders" emphasised shared priorities in energy transition, while "Jouke de Vries" underlined the role of sustained academic partnerships. The initiatives mark a significant step in strengthening Indo-Dutch cooperation and human capital for the global hydrogen economy.

BLUE HOLES

Blue holes are among the least understood features of the ocean floor. From the surface they appear calm, merging with nearby reefs or open sea. Beneath, they descend sharply and shift in form and chemistry.



The Sansha Yongle Blue Hole, also called the Dragon Hole, in the South China Sea has drawn sustained scientific interest. Once confirmed as the world's deepest blue hole at 301.19 metres, it has since lost that record to a deeper site in Mexico. Yet its structure and isolation continue to make it a vital site for marine research.

Complex Three-Dimensional Structure

Detailed surveys show that the Dragon Hole is not a straight vertical shaft. It bends and tilts as it descends. The deepest point lies more than 100 metres horizontally from the surface opening.

The entrance is broad near the top, then narrows sharply before widening again at certain depths. This uneven morphology reflects gradual formation over time rather than a single collapse event. Reef limestone dominates the walls, shaped by long-term erosion and sea-level change.

Advanced Mapping and Measurement

Early measurement attempts were hindered by the hole's twisting interior. Navigation systems struggled with angled walls and shifting passages. In 2017, researchers deployed a high-grade remotely operated vehicle fitted with precise positioning tools.

The mission produced the first full three-dimensional map. Multiple instruments were cross-checked to ensure accuracy. The final confirmed depth was recorded at 301.19 metres with minimal uncertainty. The mapping process took longer than expected due to the hole's complex geometry.



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Established under Centre for Continuing Education Kerala (CCEK)

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SOIL HEALTH IN INDIA

Healing Soils in India: For Better Crop Health and Human Nutrition' Report has been released by Indian Council for Research on International Economic Relations (ICRIER).

Status of Soil Health in India

 <p>Micronutrient Depletion</p> <p>Nearly half of the soils lack micronutrients like sulphur, boron, and zinc.</p>	 <p>Low Organic Carbon</p> <p>75% of Indian soils are below the minimum required Soil Organic Compound of 0.75%.</p>
 <p>Phosphorus and Potassium Shortages</p> <p>Only 45% of soils have sufficient phosphorus and 32% have adequate potassium.</p>	 <p>Nitrogen Deficiency</p> <p>Nearly 95% of Indian soils lack adequate nitrogen.</p>

Primary Causes of Soil Degradation

- **Distorted Fertilizer Policy:** Highly subsidized **urea (a source of N) receives over 80% subsidy**, while subsidies for P and K are significantly lower. This price distortion encourages farmers to overuse N.
- **Faulty Farming Practices:** **Intensive tillage**, prolonged water stagnation in **rice cultivation**, heavy reliance on **monocropping** (e.g. cereal-cereal rotations), and **burning of crop residues** accelerate native carbon loss and damage soil structure.
- **Massive Soil Erosion:** India loses about **5.3 billion tonnes of topsoil annually** to water and wind erosion. This strips away 5.4–8.4 million tonnes of primary nutrients every year.

Negative Impact on Crop and Human Health

- **Dropping Crop Efficiency:** Plants can no longer absorb nutrients well. This reduces the efficiency of crop production.
- **Loss of Nutritional Quality:** Weak soils produce crops deficient in essential micro nutrients such as zinc and iron.

- **Rise of Hidden Hunger:** Nutrient deficient crops cause **stunting, wasting, malnutrition** in children.
- **Water Contamination:** Over-dose of **fertilizer leaches out in groundwater** making it unsafe for drinking.

Way Forward

- **Reform Fertilizer Policies:**
 - Bringing **urea under the NBS regime** would rationalize prices.
 - Provide **direct income support** in place of subsidy.
 - **Promote Innovative Products:** Customized fertilizers, water-soluble formulas, and bio-fertilizers etc.
 - Using **AI and machine learning** to combine land records, satellite imagery, and fertilizer sales to identify and support tenant farmers.
 - **4R Framework:** Applying the **Right Source** at the **Right Rate**, **Right Time**, and **Right Place**.
- **Other:**
 - Promoting **Integrated Nutrient Management (INM)** by combining synthetic fertilizers with organic inputs (like farmyard manure and biochar).
 - **Cover cropping**, and **crop diversification** (such as integrating legumes) will rebuild soil organic carbon and restore ecosystem balance.

Government Initiative to Promote Soil Health: Soil Health Card Scheme; PM-PRANAM Scheme; Paramparagat Krishi Vikas Yojana; Neem-Coated Urea, etc.

INDIA -ISRAEL RELATIONS



Prime Minister Narendra Modi's February 2026 standalone visit to Israel occurs amid escalating West Asian instability – U.S.-Iran tensions, fragile Gaza ceasefire, and emerging regional blocs.

The visit signals consolidation of India-Israel ties beyond symbolism, with strategic, economic and geopolitical implications.

Main Arguments

1. Deepening Strategic and Defence Convergence

India and Israel face common security threats – terrorism, hostile neighbourhoods, and missile/drone warfare. According to SIPRI, India accounted for nearly **34% of Israel's arms exports (2020-24)**, making it Israel's largest defence customer. Cooperation has shifted from buyer-seller to **joint development and co-production**.

- **Barak-8 missile defence system** exemplifies co-development success.
- "India-Israel Vision on Defence Cooperation" (2022) emphasised futuristic technologies.
- Reports indicate focus on the **Iron Beam laser-based air defence system**, aligned with India's Mission *Sudarshan Chakra* for integrated air and anti-drone defence.
- Growing private-sector collaboration (e.g., surveillance and sensor-based systems).

For India, lessons from *Operation Sindoor* (May 2025) underline the urgency of layered air and missile defence architecture.

2. Science, Technology and Innovation Linkages

Israel's technological ecosystem complements India's development needs.

- Over **35 Centres of Excellence (CoE)** across Indian states support high-density horticulture (mango, citrus, pomegranate, date palm, beekeeping).
- MASHAV agreements with Haryana (2022) and Rajasthan (2024) enhance integrated water management – critical amid India's rising water stress.
- Emerging focus areas: Artificial Intelligence (AI), agritech, electronics, medical equipment.

This cooperation aligns with India's push for *Atmanirbhar Bharat* and tech-led growth.

3. Expanding Economic and Trade Architecture

While security dominates headlines, trade is substantial. Bilateral trade reached **\$3.75 billion in FY 2024-25**, with diversification beyond diamonds and chemicals into high-tech sectors.

Recent developments:

- **Bilateral Investment Agreement (September 2025)**
- Terms of Reference for a **Free Trade Agreement (FTA)** (November 2025).

An FTA could integrate Israel into India's recent trade momentum (EU, Oman, UAE agreements). Additionally, proposals on infrastructure cooperation and human mobility could deepen interdependence.

4. India-Middle East-Europe Economic Corridor (IMEC)

Announced at the G-20 Summit (Delhi, 2023), IMEC aims to provide a shorter and secure route linking India to Europe via West Asia. With the **Suez Canal vulnerable to disruptions**, IMEC offers strategic diversification.

However, Gaza stability remains crucial. The visit may revive momentum amid renewed geopolitical urgency.

5. Gaza Peace Process and Regional Balancing

India attended the February 2026 "Board of Peace" Summit as an observer. With strong ties to Israel, UAE, Saudi Arabia, Jordan and Oman, India maintains strategic balance.

VILLAGES OF EXCELLENCE

Netanyahu's proposal of a "hexagon alliance" reflects bloc politics. However, India's foreign policy doctrine emphasises **strategic autonomy**, avoiding entanglement in sectarian axes (Shia-Sunni rivalry).

India's energy security – given dependence on Gulf imports – necessitates cautious engagement regarding Iran and broader regional tensions.

Criticisms / Challenges

- **Risk of Over-Securitisation:** Excessive defence focus may overshadow balanced diplomacy.
- **Palestinian Sensitivities:** Standalone Israel visit could attract criticism domestically and internationally.
- **Regional Bloc Politics:** Joining or appearing aligned with anti-Iran blocs could complicate India's West Asia balancing strategy.
- **IMEC's Fragility:** Corridor viability depends on durable regional peace.
- **Energy Security Concerns:** Escalation involving Iran could disrupt oil supplies and increase import bills.

Way Forward

- **Maintain De-hyphenation Policy:** Engage Israel and Palestine independently while supporting a two-state solution.
- **Strengthen Co-Production:** Move from arms imports to joint R&D and defence manufacturing in India.
- **Fast-Track FTA Negotiations:** Expand high-tech trade and innovation ecosystems.
- **Promote IMEC Diplomatically:** Integrate Gulf partners to stabilise connectivity initiatives.
- **Leverage Balanced Diplomacy:** Use ties with Gulf states and Israel to contribute constructively to peace-building efforts.

The visit underscores India's calibrated West Asia strategy – deepening strategic ties with Israel while preserving regional balance. If managed prudently, the engagement could enhance India's defence preparedness, technological modernisation and connectivity ambitions without compromising strategic autonomy.

The Villages of Excellence is a grassroots-level extension of the **Indo-Israel Agriculture Project (IIAP)**.

While previous cooperation focused on centralized high-tech hubs, this initiative aims to transform entire farming clusters into modern, technology-driven agricultural zones by integrating Israeli expertise directly into local village ecosystems.

Aim:

- The primary goal is to **bridge the gap** between high-tech research centers and the common farmer.
- By taking Israeli technology from the Centres to the Villages, the initiative aims to significantly increase the productivity and income of lakhs of Indian farmers through sustainable, future-ready farming solutions.

Key Features:

- **Expansion of CoEs:** A target has been set to increase the number of Centres of Excellence (CoEs) across India to **100**.
- **Grassroots Integration:** Developing villages located around existing CoEs to act as models for surrounding regions.
- **Technological Suite:** Implementation of precision farming, satellite-based irrigation, advanced nursery management, and integrated pest management.
- **IINCA Support:** Supported by the newly established India-Israel Innovation Centre for Agriculture (IINCA), which provides the research base for these villages.
- **Capacity Building:** Training for farmers on-site and the launch of 20 joint fellowships for Indian researchers to study in Israel.

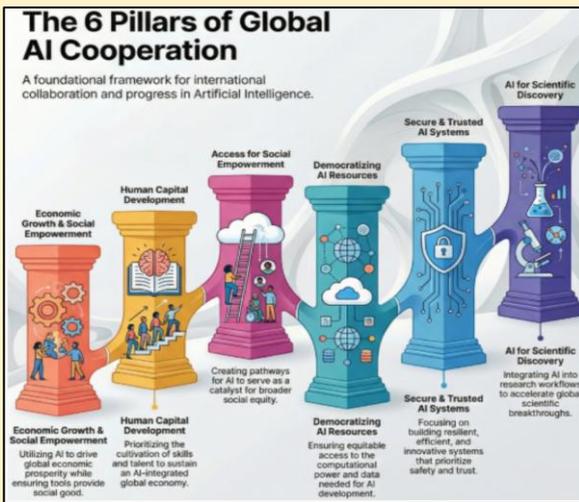
Significance:

- Directly targets the doubling of farmers' income by reducing waste and increasing crop yields.
- The initiative is a cornerstone of the newly elevated Special Strategic Partnership for Peace, Innovation & Prosperity between the two nations.

AI IMPACT SUMMIT

The **AI Impact Summit** concluded in New Delhi with 89 countries and international organizations endorsing the **New Delhi Declaration**.

- This landmark agreement establishes a global framework for “AI for All,” focusing on equitable access, ethical governance, and social empowerment.



- The New Delhi Declaration is a comprehensive, multi-nation consensus document aimed at governing the development and deployment of Artificial Intelligence.
- Grounded in the philosophy of “Sarvajana Hitaya, Sarvajana Sukhaya” (Welfare for all, Happiness for all), it serves as a non-binding roadmap for international AI cooperation.

Aim: The declaration seeks to bridge the AI Divide by ensuring that foundational AI resources, such as computing power and data, are not concentrated in a few nations but are democratized for global economic growth and social good.

Key Features of the Declaration:

- Seven Pillars (Chakras) Framework:** Built around seven pillars including democratizing AI resources, secure AI, human capital development, AI for science, and resilient AI systems.



- Global Collaborative Platforms:** Launch of initiatives like Global AI Impact Commons, Trusted AI Commons, and AI for Social Empowerment Platform to enable shared learning and innovation.

1. Global AI Impact Commons

- A voluntary global platform designed to help countries share and replicate successful AI solutions.
- It enables adoption and scaling of proven AI use-cases across regions to maximize development impact.

1. Trusted AI Commons

- A voluntary, non-binding collaborative repository that brings together AI tools, benchmarks, technical resources, and best practices.
- It helps stakeholders build secure and trustworthy AI systems adaptable to different national contexts.

2. International Network of AI for Science Institutions

- A voluntary collaborative network connecting scientific institutions worldwide to pool AI research infrastructure and expertise.
- Its objective is to accelerate scientific innovation through AI-enabled research collaboration across countries.

- **Democratic Diffusion of AI Charter:** Promotes affordable access to foundational AI resources and supports locally relevant innovation ecosystems.
- **Focus on Trusted & Secure AI:** Encourages voluntary technical standards, benchmarks, and best practices for safe AI deployment.
- **Human Capital & Reskilling:** Introduces AI workforce development playbook and guiding principles for reskilling in an AI-driven economy.
- **Energy-efficient & Resilient AI:** Emphasizes sustainable AI infrastructure and efficient systems to reduce energy and resource pressures.
- **Multistakeholder & Sovereignty-based Approach:** Balances global cooperation with respect for national laws and policy frameworks.

Significance:

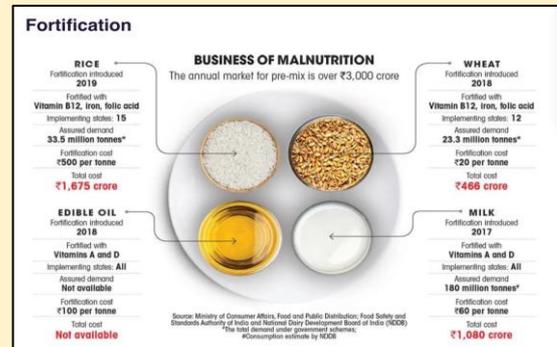
- **Global Governance Milestone:** Represents one of the largest multilateral consensuses on AI, with 89 countries aligning on shared AI principles.
- **India's Leadership in AI Diplomacy:** Positions India as a key voice shaping inclusive AI governance through the philosophy of *Sarvajan Hitaya, Sarvajan Sukhaya*.

SUSPENSION OF FORTIFIED RICE UNDER PMGKAY

The Central Government has decided to temporarily discontinue the distribution of fortified rice under the PMGKAY and other welfare schemes due to shelf-life concerns.

What is Fortified Rice?

- Fortified rice is regular rice that has been deliberately enriched with essential micronutrients – specifically **Iron, Folic Acid, and Vitamin B12**.
- This is done to improve the nutritional quality of the food supply and combat hidden hunger or micronutrient deficiencies among vulnerable populations.



Associated Schemes:

The fortification initiative was integrated into India's largest social safety nets, including:

- **PMGKAY:** Pradhan Mantri Garib Kalyan Anna Yojana (Free foodgrain scheme).
- **TPDS:** Targeted Public Distribution System under the National Food Security Act (NFSA).
- **PM-POSHAN:** Formerly the Mid-Day Meal Scheme in schools.
- **ICDS:** Integrated Child Development Services (delivered through Anganwadi centres).

Aim:

- The primary goal was to address **malnutrition and anemia** nationwide by 2024. By making fortified rice mandatory in government schemes, the government aimed to provide a cost-effective and scalable public health intervention to improve the health of women and children.

Steps in Fortification:

- **Production of Fortified Rice Kernels (FRK):** Rice flour is mixed with a premix of vitamins and minerals and then shaped into grain-like kernels using an extruder machine.
- **Blending:** These FRKs are blended with regular polished rice, typically at a ratio of **1:100** (one fortified kernel for every 100 grains of regular rice).

Key Features:

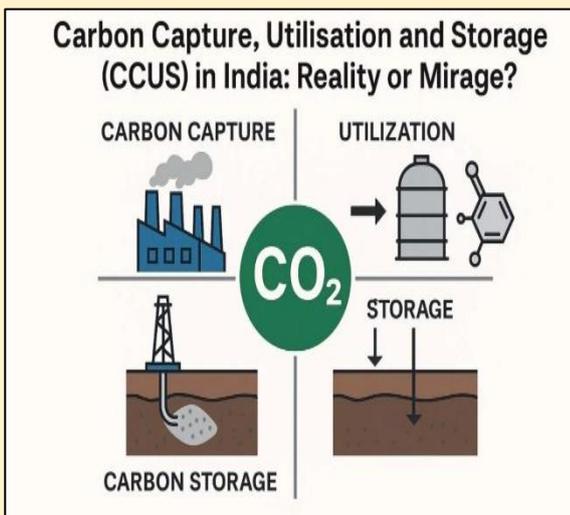
- **Government Funded:** The entire cost of fortification is borne by the Government of India as part of the food subsidy.

- **Phased Implementation:** The rollout began in 2021 with the goal of covering all districts in India by June 2024.
- **Technical Support:** Organizations like the **World Food Programme (WFP)** provide technical assistance and training to millers and officials.

Current Challenge:

- The high buffer stocks in India mean rice often stays in silos for **2–3 years**.
- The IIT-Kharagpur study highlighted that moisture and humidity during this long duration degrade the nutrients, leading to the current suspension until a more robust delivery mechanism is found.

CARBON CAPTURE AND UTILISATION (CCU) TECHNOLOGIES



Carbon Capture and Utilisation (CCU) technologies aim to capture CO₂ from industrial sources or air and convert it into useful products. For India, the world’s third-largest emitter, CCU offers a pathway to decarbonise hard-to-abate sectors while supporting a circular, low-carbon economy.

Main Arguments

- **Concept and Technological Basis of CCU:** CCU captures CO₂ from power plants, cement, steel, refineries or through Direct Air Capture and converts it into fuels (methanol, synthetic fuels), chemicals (olefins), building materials (carbonated concrete) or polymers. Unlike CCS, it reuses rather than stores carbon.

- **Relevance for Hard-to-Abate Sectors:** India’s emissions are concentrated in cement, steel, chemicals and thermal power. Process emissions in cement (from limestone calcination) cannot be eliminated by renewables alone. CCU reduces point-source emissions and lowers carbon intensity of industrial output.
- **Emission Reduction Pathways:** CCU reduces emissions by:
 - Capturing CO₂ before atmospheric release.
 - Substituting fossil-derived feedstocks with CO₂-derived inputs.
 - Permanently mineralising CO₂ in construction materials.
 - Integrating with green hydrogen to produce low-carbon synthetic fuels.
- **Global Policy Support: EU Experience:** The EU Bioeconomy Strategy (2018) promotes sustainable use of biological and carbon resources, encouraging CO₂ as industrial feedstock. The Circular Economy Action Plan (2020), under the European Green Deal, supports industrial symbiosis and CO₂-based products. Carbon pricing under the EU ETS improves CCU viability.
- **International Industry Examples:** ArcelorMittal and Mitsubishi Heavy Industries, Ltd., with D-CRBN in Belgium, are converting captured CO₂ into carbon monoxide for reuse in steelmaking. The U.S. provides tax credits (e.g., 45Q) to incentivise CCU. UAE’s Al Reyadah integrates CCU with green hydrogen hubs.

India’s Current Status

- **Policy Roadmaps:** Department of Science & Technology has issued a dedicated CCU R&D roadmap. Ministry of Petroleum & Natural Gas released a draft 2030 CCUS roadmap identifying industrial clusters.

- **Industrial Pilots**
 - Ambuja Cements (Adani Group)- IIT Bombay Indo-Swedish pilot for CO₂-to-fuels/materials.
 - JK Cement CCU testbed for lightweight concrete and olefins.
 - Organic Recycling Systems Limited (ORSL) Bio-CCU platform converting biogas CO₂ into bio-alcohols.
- **Climate Commitments Alignment:** Supports India's 2070 Net Zero target and Panchamrit commitments under COP26.

Challenges / Risks

- **Cost Competitiveness:** CO₂ capture and conversion are energy-intensive; CCU products struggle against cheaper fossil-based alternatives without policy incentives.
- **Infrastructure Gaps:** Requires industrial clusters, CO₂ pipelines, purification systems, and green hydrogen availability. Infrastructure is uneven across Indian regions.
- **Regulatory and Market Uncertainty:** Absence of carbon pricing, lifecycle certification standards and green procurement mandates limits investor confidence.
- **Risk of Limited Net Gains:** If powered by fossil energy, CCU may not significantly reduce lifecycle emissions.
- **Financing Constraints:** High capital costs and technology risks deter large-scale private sector adoption.

Way Forward

- **Introduce Market Incentives:** Carbon pricing, tax credits, viability gap funding or Production-Linked Incentives for CO₂-derived products.
- **Develop CCU Industrial Clusters:** Integrate CCU in cement and steel hubs (e.g., Gujarat, Odisha) with shared capture and utilisation infrastructure.
- **Align with National Green Hydrogen Mission:** Use green hydrogen to enhance CO₂-to-fuel conversion efficiency and reduce lifecycle emissions.

- **Establish Certification Frameworks:** Develop lifecycle carbon accounting standards and green product labelling to create market demand.
- **Strengthen R&D and PPPs:** Scale pilot projects into commercial demonstration plants with blended finance and global climate funds.

CCU can serve as a transitional decarbonisation tool for India's industrial economy. However, its success depends on coherent policy support, clean energy integration, cost reduction and robust regulatory standards to ensure genuine emission reductions rather than symbolic compliance.

INTERNATIONAL CLIMATE INITIATIVE (IKI)

Germany and India have launched a new Large Grant project (approx. ₹180 crore) under the International Climate Initiative (IKI) to strengthen India's climate resilience.



About International Climate Initiative (IKI):

- **Nature:** The **International Climate Initiative (IKI) or Internationale Klimaschutzinitiative** is a key **financial instrument of the German government** that funds international projects focused on climate change mitigation, adaptation, and biodiversity conservation in developing and emerging economies.
- **Establishment:** It was launched in **2008 by the German Federal Ministry for the Environment (BMUV)**.
- **Objective:** It aims to **support partner countries in implementing and ambitiously developing their Nationally Determined Contributions (NDCs)** under the Paris Agreement and achieving goals set by the Convention on Biological Diversity (CBD).

- **Current lead:** Since 2022, the Federal Ministry for Economic Affairs and Climate Action (**BMWK**) **leads the initiative**, working with the Federal Foreign Office and BMUV.
- **Thematic diversity:** It focuses on **four main areas-** Mitigating greenhouse gas emissions, Adapting to the impacts of climate change, Conserving natural carbon sinks (REDD+), and Protecting biological diversity.
- **Consortium-based funding:** Projects are typically implemented by a **mix of NGOs, research institutes, international organizations (like GIZ), and the private sector** to ensure multidisciplinary expertise.
- **Ecosystem-based Adaptation (EbA):** A core feature is **using nature** (e.g., forest restoration, wetland protection) **to help human communities adapt to climate risks** like floods and heatwaves.
- **Innovative financing:** It promotes **high-risk/high-reward financial mechanisms** like **blended finance, biodiversity credits,** and climate insurance to mobilize private capital.
- **Monitoring and learning:** It requires **rigorous Monitoring, Evaluation, and Learning (MEL) frameworks** to ensure that local successes can be scaled up to national or global policies.

- The **Druzhba Pipeline** (translating to Friendship in English) is one of the world's longest and largest crude oil pipeline networks.
- Established during the Soviet era, it serves as the primary artery for transporting Russian and Kazakh oil to the industrial heartlands of Central and Eastern Europe.

Located In:

- The network originates in **Almetyevsk, Tatarstan (Russia)**, where it collects oil from Western Siberia, the Urals, and the Caspian Sea.
- It spans approximately **4,000 kilometers**, crossing the Russia-Belarus border before splitting into two massive branches.

States/Countries it Goes Through:

- **Russia:** The starting point and primary source.
- **Belarus:** The central transit hub at Mazyr where the line splits.
- **Northern Branch:** Travels through **Poland** to reach **Germany**.
- **Southern Branch:** Travels through **Ukraine** to supply **Hungary, Slovakia,** and the **Czech Republic**.

Historical Branches: Connected to **Lithuania** and **Latvia**

Aim:

- The pipeline was originally constructed in the 1960s to establish friendly relations through the reliable supply of cheap energy from the Soviet Union to its Eastern European allies.
- Today, its aim remains the provision of energy security to landlocked Central European nations that lack easy access to seaborne oil.

Key Features:

- **Massive Scale:** The system crosses 45 major rivers and over 200 railways and highways.
- **Two-Pronged Distribution:**
 - **Northern Branch:** Supplies refineries in Płock (Poland) and Schwedt (Germany).

DRUZHBA OIL PIPELINE

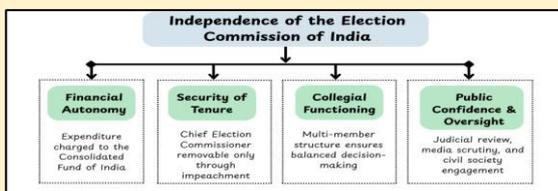
The Druzhba oil pipeline is at the center of a geopolitical standoff following a complete halt in flows due to drone attacks, leading Hungary and Slovakia to veto new EU sanctions on Russia.



- **Southern Branch:** Connects to the Odesa-Brody pipeline and supplies the Duna (Hungary) and Tisza refineries.
- **Capacity:** At its peak, it pumped over **1 million barrels per day**, accounting for roughly 1% of the total global oil supply.
- **Strategic Bypass:** Russia built the **BPS-2** (Baltic Pipeline System) to reduce reliance on the Druzhba transit through Belarus and Ukraine.

INDEPENDENCE OF ELECTION COMMISSION

Allegations surrounding electoral roll revisions, debates over the 2023 appointment law, and a proposed motion to remove the Chief Election Commissioner have revived concerns regarding the institutional independence of the Election Commission of India (ECI), a pillar of India's democratic basic structure.



Main Arguments

- **Free and Fair Elections as Basic Structure:** In *Indira Gandhi v. Raj Narain (1975)*, the Supreme Court recognised free and fair elections as part of the Basic Structure. Article 326 guarantees universal adult suffrage, while Article 324 vests the ECI with plenary powers of superintendence, direction and control over elections.
- **Institutional Design under Article 324:** The Constitution provides for a permanent Election Commission comprising the CEC and other Election Commissioners. Since 1993, it has functioned as a multi-member body, validated in *T.N. Seshan v. Union of India (1995)*, ensuring collegial decision-making rather than concentration of power.

- **Safeguards in Removal Process:** Under Article 324(5), the CEC can be removed only through the impeachment-like procedure applicable to Supreme Court judges under Article 124(4), requiring proved misbehaviour or incapacity. This quasi-judicial parliamentary process under the Judges (Inquiry) Act, 1968 ensures natural justice and protection from executive arbitrariness.

- **Appointment Controversy and the 2023 Act:** The Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Office and Terms of Office) Act, 2023 provides for appointment by a committee comprising the Prime Minister, a Union Minister and the Leader of Opposition.
- Critics argue that exclusion of the Chief Justice of India – contrary to the interim arrangement suggested in *Anoop Baranwal v. Union of India (2023)* – may affect perceived neutrality.

- **Recent Electoral Roll Concerns:** Allegations regarding large-scale deletions during Special Intensive Revision (SIR), including deletion of around 65 lakh voters in Bihar, have raised concerns about procedural fairness and transparency, though matters remain sub judice.

Challenges

- Perceived executive dominance in appointments.
- Increasing politicisation of the ECI's decisions.
- Concerns over transparency in electoral roll management.
- Limited financial and administrative autonomy (budget routed through Law Ministry).
- Absence of an independent secretariat insulated from executive control.

Reform Suggestions

Collegium-Based Appointment Mechanism

- The *Law Commission (255th Report, 2015)* recommended a collegium comprising the Prime Minister, Leader of Opposition and Chief Justice of India.
- *Association for Democratic Reforms (ADR)* has consistently advocated inclusion of judicial members to ensure neutrality.
- The Supreme Court in *Anoop Baranwal (2023)* temporarily directed such a composition until Parliament enacts a law.

Independent Secretariat and Financial Autonomy

- The *Second Administrative Reforms Commission (ARC)* recommended that the ECI be provided with an independent secretariat akin to that of the Supreme Court and charged expenditure status under the Consolidated Fund of India.

Equal Removal Protection for ECs

- The *Dinesh Goswami Committee (1990)* and later the *Law Commission* suggested that other Election Commissioners should enjoy the same removal protection as the CEC to prevent hierarchical vulnerability.

Transparent Electoral Roll Audits

- ADR and civil society groups recommend mandatory third-party social audits, public disclosure of deletion criteria, and stronger grievance redressal systems to ensure fairness in voter registration exercises.

Cooling-Off Period and Post-Retirement Restrictions

- Several experts have suggested a statutory cooling-off period to prevent post-retirement appointments, thereby strengthening impartiality.

The Election Commission's authority rests not only on constitutional text but on public trust. While Article 324 and impeachment safeguards provide structural autonomy, evolving political contestation necessitates institutional reforms that enhance transparency, financial independence and bipartisan legitimacy. Preserving both the letter and spirit of electoral integrity is indispensable to sustaining India's democratic basic structure.

RAISING AND ACCELERATING MSME PERFORMANCE PROGRAM



Recently, the Ministry of MSME organised the 5th meeting of the National MSME Council to review progress of World Bank-Supported RAMP Programme in New Delhi.

About RAMP Programme:

- **Full form:** RAMP stands for **Raising and Accelerating MSME Performance**.
- **Nodal ministry:** It is implemented by the **Ministry of Micro, Small and Medium Enterprises (MoMSME)**.
- **Apex body:** The **National MSME Council** has been set up by the Ministry to work as an administrative and functional body of the RAMP Programme.
- **Tenure:** The tenure of the scheme is **5 years (FY 2022-23 to FY 2026-27)**.
- **Association:** It is assisted by the **World Bank**.

Key objectives:

- Improving access to **market and credit for MSMEs**
 - Strengthening **institutions and governance** at the central and state levels
 - Improving **centre-state linkages** and partnerships
 - Addressing issues of delayed **payments**

Greening of MSMEs

- **Sub schemes under RAMP:**
 - **MSME GIFT Scheme:** MSME Green Investment and Financing for Transformation Scheme **intends to help MSMEs adopt green technology** with interest subvention and credit guarantee support.

- **MSE SPICE Scheme:** The MSE Scheme for **Promotion and Investment in Circular Economy** aims to support circular economy projects which will be done through credit subsidy and will lead to realising the dream of MSME sector towards zero emissions by 2070.
- **MSE ODR Scheme:** The MSE Scheme on **Online Dispute Resolution for Delayed Payments** is a first of its kind scheme to synergise legal support with modern IT tools and Artificial Intelligence to address the incidences of delayed payments for Micro and Small Enterprises.

More than 12,000 patients in India are estimated to be living with LSDs. Currently, treatments exist for only a small fraction of rare diseases, and available therapies often cost over Rs 1 crore per patient annually. Of the 530 patients in the biobank cohort, nearly 60% have died, and only eight are receiving treatment.

The initiative is led by the Foundation for Research in Genetics and Endocrinology (FRIGE), Institute of Human Genetics, Ahmedabad. Published in the Orphanet Journal of Rare Diseases, the biobank covers 8 LSD subgroups across 27 disorders.

Biological samples include genomic DNA from blood, plasma and urine precipitate, processed for enzyme and genetic analysis. The most common conditions recorded are Gaucher disease (70 cases), Tay-Sachs disease (62), Mucopolysaccharidosis II/III (44) and Morquio-A syndrome (40).

Research And Therapeutic Development

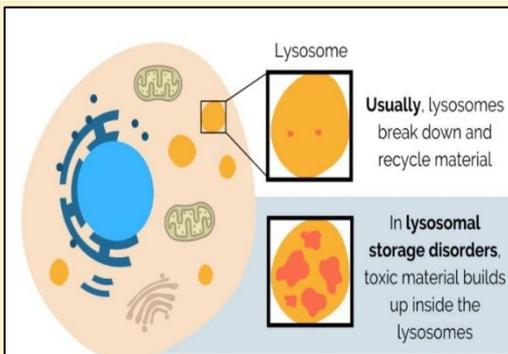
The biobank operates through a centralised digital platform that stores clinical and genomic data. It is already being utilised by research institutions to develop therapies and screening tools.

Collaborations include work with the Tata Institute for Genetics and Society (TIGS) in Bengaluru to create human stem cell-based disease models. The Institute for Stem Cell Science and Regenerative Medicine (inStem) is developing general therapeutic approaches, while the Centre for DNA Fingerprinting and Diagnostics (CDFD) is working on spectrometry-based screening technologies.

Facts :

- Lysosomal Storage Disorders are inherited metabolic diseases caused by enzyme deficiencies.
- Department of Biotechnology (DBT) funds biomedical research under the Government of India.
- Stem cell-based disease models help study genetic disorders and test therapies.
- Rare diseases often require high-cost enzyme replacement therapies.

NATIONAL BIOBANK ON LSD'S



Researchers from 28 medical and research institutions across six states and two Union Territories have established India's first government-supported national biobank dedicated to Lysosomal Storage Disorders (LSDs).

The initiative integrates biological samples and detailed clinical, biochemical and genetic data of 530 patients from 15 states.

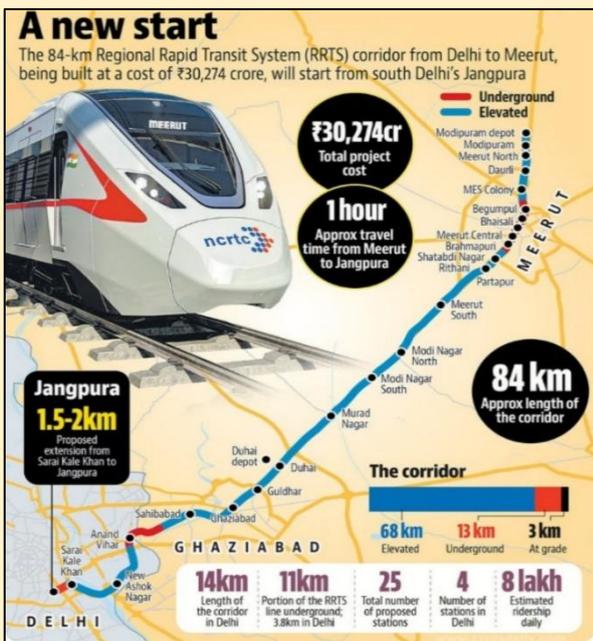
Funded by the Department of Biotechnology (DBT), the biobank aims to support the development of affordable screening tools and therapies for children affected by these life-threatening genetic disorders.

Understanding Lysosomal Storage Disorders

Lysosomal Storage Disorders are a group of over 70 rare, inherited metabolic conditions caused by the deficiency of specific enzymes. In the absence of these enzymes or their activators, fats and sugars accumulate inside cells, leading to progressive organ damage.

By centralising data and biological samples, the biobank addresses the long-standing gap in coordinated rare disease research in India. It is expected to accelerate early diagnosis, enable indigenous therapy development and reduce treatment costs over time. The initiative marks a significant step towards strengthening India's rare disease research ecosystem and improving outcomes for affected families.

RRTS CORRIDOR



Prime Minister launched the full Delhi-Meerut RRTS corridor to boost regional connectivity.

- **Project Scale:** 82-km high-speed regional rapid transit system completed.
- **Implementation Agency:** National Capital Region Transport Corporation (NCRTC).
- **Speed Advantage:** Designed for higher average speeds than Metro; suitable for inter-city commuting.
- **Multimodal Integration:** Linked with Indian Railways, Delhi Metro, bus terminals, and key hubs.
- **Economic Impact:** Expected to boost NCR economic integration and reduce housing pressure in Delhi.
- **Environmental Benefit:** Reduction in vehicular traffic and carbon emissions.

Future Plans: Additional RRTS corridors proposed toward Haryana and Rajasthan

Regional Rapid Transit System (RRTS)

What is RRTS?
The **Regional Rapid Transit System (RRTS)** is a high-speed, high-frequency regional rail network designed to connect major urban nodes within the National Capital Region (NCR).

Key Features

- Designed speed: up to 180 km/h (operational speed lower).
- Higher average speed than Metro systems.
- Longer inter-station distance compared to city metros.
- Focused on inter-city/regional commuting.
- Seamless multimodal integration (Metro, Railways, Bus).

Implementation

- Implemented by the **National Capital Region Transport Corporation (NCRTC)**.
- First corridor: **Delhi-Meerut (82 km)**.
- Part of India's broader infrastructure modernization strategy.

Significance

- Reduces congestion and travel time in NCR.
- Promotes transit-oriented development.
- Lowers carbon emissions.
- Boosts regional economic integration.

KERALA STATE CIVIL SERVICE ACADEMY
Established under Centre for Continuing Education Kerala (CCEK)

NURTURING YOUNG MINDS TOWARDS TOMORROW'S CIVIL SERVICE

COURSES

- **Prelims Cum Mains Regular Batch**
Course Fee: ₹ 45,200 (₹ 40,000 + 18% GST ₹ 7,200 + Caution Deposit ₹ 2,000)
- **Prelims Cum Mains Weekend Batch**
For the Working Professionals & students who are doing their UG/PG
• Course Fee: Ongoing Degree/PG students: ₹ 41,300 (₹ 35,000 + 18% GST ₹ 6,300)
• Course Fee: Working Professionals: ₹ 49,200 (₹ 40,000 + 18% GST ₹ 7,200 + Caution Deposit ₹ 2,000)
- **Civil Service Foundation Course**
For Higher Secondary School Students
Course Fee: ₹ 5,900 (₹ 5,000 + GST ₹ 900)
- **Talent Development Course**
For High School Students
Course Fee: ₹ 4,720 (₹ 4,000 + 18% GST ₹ 720)

- **REHEARSE- Prelims Test Series**
38 Test papers including 3 exclusive current affairs tests and 5 GSAT papers
- **RESILIENCE- Mains Test Series**
17 Tests including compulsory papers
- **REKINDLE- PCM REPEATERS BATCH**
Mentorship, Weekly Current Affairs classes, Bi Weekly GSAT classes, Prelims Test Series, Revision classes, Extensive Answer Writing class / Practices
- **REPHRASE- Mains Answer Writing Programme**
This answer writing exercise will cover Essay, General Studies - I, General Studies - II, General Studies - III & General Studies - IV papers

KEY HIGHLIGHTS

- Prelims & Mains test series with All Kerala rank list.
- Expert faculties.
- Library facility across the centres.
- Instalment facility for fee payment available to BPL category students.

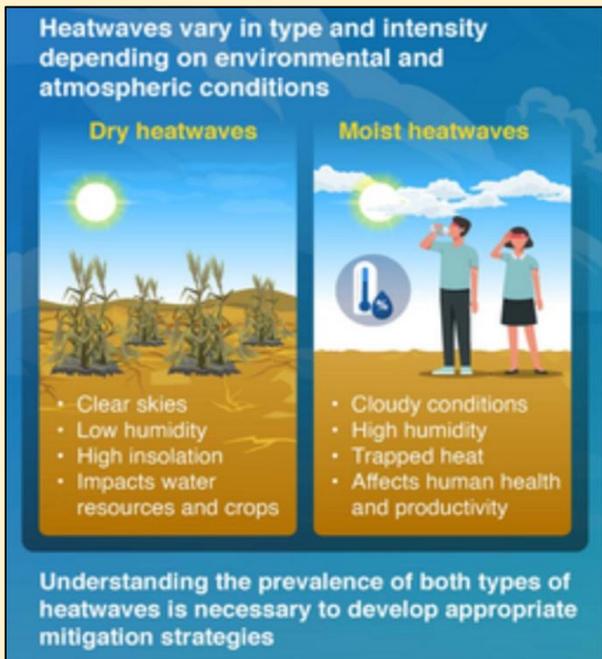
Optional Subjects
Geography, History, Malayalam, Political Science & International Relations, Public Administration and Sociology
Course Fees: Rs. 11,800/- (Fees Rs. 10,000/- + GST Rs.1,800/-).

KERALA STATE CIVIL SERVICE ACADEMY
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MOIST HEATWAVES



Research showed that timings of the moist heatwaves are controlled by the active and break periods of the southwest monsoon and can be predicted weeks in advance.

About Moist Heatwave:

- **Trigger:** Moist heatwaves are triggered by a **combined impact of high temperatures and elevated humidity levels** in the atmosphere.
- **Measurement:** The best way to measure the combined effect of humidity and temperature is 'wet bulb temperature'.
- **Wet bulb temperature:** Wet bulb temperature is the **lowest temperature to which air can be cooled by the evaporation of water into the air at constant pressure.** This is a process happening on human skin when people sweat.
- **Accepted level:** The globally accepted level for wet bulb temperature that forms the **limit of human survivability is 35°C.**
 - **IMD Criteria for Heatwaves:** While the India Meteorological Department (IMD) primarily uses temperature thresholds, moist heat is increasingly factored into "Heat Index" warnings:

- **Plains:** Max temperature $\geq 40^{\circ}\text{C}$.
- **Coastal Regions:** Max temperature $\geq 37^{\circ}\text{C}$.
- **Hilly Regions:** Max temperature $\geq 30^{\circ}\text{C}$.
- **Impact of Moist Heatwaves on humans:**
 - When air is already humid, sweat cannot evaporate from skin, leaving the body unable to cool itself. This can lead to **heat exhaustion and fatal heatstroke** within hours.
 - It is because high humidity impairs evaporation, **limiting the human body's ability to dissipate metabolic heat** and regulate core temperature.
- In such circumstances, the physiological strain on the **human body intensifies, exacerbating the risks of cardiovascular and respiratory illnesses.**
 - A **thermoregulatory failure** can lead to hyperthermia, heat exhaustion, and fatal heatstroke in extreme cases.

CHICORY

Recently, FSSAI gave an advisory related to Chicory, whose content must be prominently displayed on front of coffee powder packs from 1 July.



About Chicory:

- **Nature:** It is a **blue-flowered, woody perennial herbaceous plant** mainly cultivated in temperate regions worldwide.
- **Family:** Chicory (*Cichorium intybus*) is a plant belonging to the **Asteraceae family.**
- **Distribution:** It is native to **Europe and Asia;** in India, it is primarily cultivated in **Uttar Pradesh and Gujarat.**
- **Significance:** There are several varieties of the chicory plant, known differently globally due to its **numerous medicinal, culinary, and nutritional qualities.**

- **Uniqueness:** It contains **Inulin**, a **soluble fiber and prebiotic** that acts as a natural sweetener. It is naturally **caffeine-free and rich in beta-carotene**.
 - **Additive in coffee:** It is a popular additive that provides a **darker colour and an earthy taste to the beverage**. It is significantly less expensive than high-quality coffee.
- **Existing rules:** Previous **FSSAI regulations (2011)** stipulated that a coffee-chicory mixture must **contain at least 51% coffee**.
 - **Legal status:** Under the **Coffee Act 1942**, chicory is **not defined as coffee because** it does not come from a rubiaceae plant.
- **Other uses:**
 - **Culinary:** Leaves are used as **salad greens** (e.g., Radicchio, Belgian endive).
 - **Medicinal:** Used in **traditional medicine (folk remedies)** for liver health, digestion, and as a mild laxative.
 - **Agricultural:** Grown as a **forage crop for livestock** (especially sheep) due to its nutrient density.

- Four new species of pygmy grasshoppers (family Tetrigidae) were discovered in Kole wetlands.
- The study underscores the ecological significance of this Ramsar-listed wetland ecosystem.
- Pygmy grasshoppers are important bio-indicators of wetland health.
- The findings reveal high microhabitat diversity within agricultural-wetland landscapes.
- Researchers emphasised the need for long-term taxonomic and ecological documentation.
- The discovery strengthens the case for conservation of Kole wetlands.
- It highlights that even human-modified wetlands can harbour undocumented species diversity.

Kole Wetlands

- Kole Wetlands is a large freshwater wetland ecosystem located in Thrissur and Malappuram districts of Kerala.
- The term “Kole” refers to bumper yield, indicating its high agricultural productivity.
- It is a below sea-level wetland system, seasonally flooded during the monsoon.
- The area supports extensive paddy cultivation through controlled water management.
- It was designated as a Ramsar Site in 2022 due to its ecological importance.
- The wetland serves as a crucial habitat for migratory and resident birds.
- It plays an important role in flood regulation, groundwater recharge and carbon sequestration.
- Kole wetlands also support rich biodiversity, including fish, amphibians and recently discovered pygmy grasshopper species.

KOLE WETLANDS

A scientific study in Kerala’s Kole wetlands has led to the discovery of four new species of pygmy grasshoppers, highlighting the region’s rich but understudied biodiversity.



SAYYAD-3G NAVAL AIR-DEFENCE MISSILE

Iran has successfully test-fired the new Sayyad-3G naval air-defence missile during naval drills in the strategic Strait of Hormuz, signalling enhanced maritime defence capabilities amid tensions with the U.S. and Western forces.

- Iran tested the Sea-based Sayyad-3G naval air-defence missile in drills in the Strait of Hormuz.
- The missile was launched from the **Shahid Sayyad Shirazi** warship using a **vertical launch system**.
- Sayyad-3G is a maritime adaptation of Iran's long-range Sayyad air-defence family, expanding naval air defence range ~150 km.



- It is designed to intercept aircraft, UAVs and other aerial threats to naval vessels.
- The test comes amid regional tensions and increased U.S. naval presence near Iranian waters.
- Iran claims the system strengthens its **sea-denial strategy** and protects its navy against foreign threats.
- Western and Israeli militaries are monitoring the development closely due to strategic implications.

Sayyad-3G Missile - Key Features

- It is a **naval surface-to-air missile (SAM)** developed by Iran.

- Designed for **ship-based vertical launch systems (VLS)**.
- Primarily meant to intercept **aircraft, UAVs and other aerial threats**.
- Reported operational range of around **150 km (approx.)**.
- Part of the broader **Sayyad air-defence missile family**.
- Enhances Iran's **maritime air defence and sea-denial capability**.
- Tested in naval drills in the **Strait of Hormuz**, a strategically vital chokepoint.

ALARA & LNT PRINCIPLES

The U.S. Department of Energy eliminated the ALARA principle, triggering debate over global radiation safety standards.

- **ALARA Principle:** Operational philosophy in radiation protection that mandates exposure be kept as low as reasonably achievable, balancing safety, cost, and feasibility.

☑ ALARA stands for "as low as reasonably achievable", which is the operational philosophy of radiation protection.

- "Reasonably" is the most important condition.
- The philosophy balances safety with feasibility, cost, and societal need.
- It requires that radiation exposure be reduced as much as possible, taking into account technology, cost, and social needs.

☑ **Aim:** To reduce unnecessary exposure through engineering controls and to encourage a safety culture.

☑ It is enshrined in the fundamental principles of the International Commission on Radiation Protection (ICRP).

LINEAR NO-THRESHOLD (LNT) MODEL

- ☑ A risk estimation framework that says any amount of ionising radiation, no matter how small, carries some risk of causing harm, especially cancer.
- ☑ In other words, there is no threshold below which radiation is considered completely risk-free, and the risk increases linearly with dose.

- **LNT Model:** Assumes a linear relationship between radiation dose and cancer risk, with no safe threshold.
- **Policy Shift:** U.S. DOE removed ALARA from its regulatory directives in January, marking a significant departure from long-standing safety norms.
- **Scientific Debate:** Some experts argue low-dose radiation risks may be overstated; others stress lack of conclusive evidence to replace LNT.
- **International Implications:** Global bodies like ICRP and WHO continue to rely on LNT, creating possible divergence in regulatory approaches.

- **Concerns Raised:** Potential weakening of worker protection, regulatory clarity, and public trust.
- **Broader Issue:** Balancing innovation in nuclear energy with precautionary safety frameworks.

Learning Corner:

- **ALARA Principle (As Low As Reasonably Achievable)**
- A radiation protection principle used in nuclear energy, medical radiology, and research.
- It requires that radiation exposure be kept **as low as reasonably achievable**, considering economic and social factors.
- It does not mean zero exposure, but minimisation below prescribed safety limits.
- It is based on the precautionary approach, assuming some level of risk even at low doses.
- **LNT Model (Linear No-Threshold Model)**
- A scientific model used to assess radiation risk.
- It assumes that the risk of cancer increases linearly with radiation dose.
- It also assumes there is **no safe threshold**, meaning even very small doses carry some risk.
- It forms the theoretical basis for radiation safety standards worldwide

UNESCO ASIA-PACIFIC AWARDS FOR CULTURAL HERITAGE CONSERVATION

The Our Lady of Grace Cathedral, Vasai (Maharashtra) has won the Award of Merit at the 2025 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation.



About 2025 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation:

What it is?

- A prestigious UNESCO initiative that recognises **outstanding heritage conservation projects** across the Asia-Pacific region.
- It honours restoration efforts that combine technical excellence with cultural authenticity and community participation.

Established in:

- **2000**, by UNESCO to promote best practices in cultural heritage preservation across Asia and the Pacific.

Aim:

- To encourage high-quality conservation of historic sites while maintaining cultural integrity and sustainability.
- To promote community participation and adaptive reuse of heritage structures for long-term preservation.

Key Features:

- Recognises projects based on understanding of place, technical achievement, sustainability, and impact.
- Open to private sector and public-private partnership conservation initiatives.
- Covers heritage types such as historic buildings, towns, archaeological sites, cultural landscapes and vernacular architecture.
- Projects must generally be completed within the last ten years to qualify.
- Has honoured 300+ projects across 27 countries, shaping regional conservation standards.

About Vasai Cathedral (Our Lady of Grace Cathedral):

What it is?

- A **16th-century Catholic cathedral** located in **Papdy village, Vasai (Maharashtra)**, representing early Portuguese colonial architecture in India.

History:

- Built around **475 years ago** during Portuguese rule on India's western coast.
- Constructed using stone and mud mortar, without modern cement.
- Recently restored (2023-24) through a **community-funded conservation initiative costing** about ₹4.5 crore.

Key Features:

- Reflects **Portuguese ecclesiastical architecture** with stone masonry and traditional craftsmanship.
- Interior restored using hand-carved liturgical elements and authentic materials.
- Includes restored roof, façade, corridors, colonnade and bell tower.
- Serves as a **living place of worship**, preserving both tangible and intangible heritage.

NATIONAL MONETISATION PIPELINE 2.0

Union Finance Minister has launched the National Monetisation Pipeline 2.0 (NMP 2.0) to accelerate infrastructure financing through asset monetisation.



- NMP 2.0 is the second phase of India's national asset monetisation programme that provides a **medium-term roadmap for monetising operational public infrastructure assets**.
- It focuses on unlocking value from existing brownfield assets to generate resources for new infrastructure creation and capital expenditure.

Ministry / Implementing Agency:

- Developed by **NITI Aayog** in consultation with infrastructure line ministries.
- Implemented under the guidance of the **Ministry of Finance** and monitored by the Core Group of Secretaries on Asset Monetisation (CGAM).

Aim:

- To recycle public assets and mobilise funds for fresh infrastructure development without increasing fiscal burden.
- To provide visibility and investment opportunities for private sector participation in infrastructure.

Key Features:

- **Total Monetisation Potential:** ₹16.72 lakh crore for FY 2026-2030, including ₹5.8 lakh crore private investment.
- **Guidance Framework:** Structured as a methodology and roadmap document for ministries and investors.
- **Multiple Monetisation Models:** PPP concessions, InvITs, securitisation of cash flows, strategic auctions, and partial divestments.
- **Revenue Allocation Mechanism:** Proceeds flow to Consolidated Fund of India, PSUs, State Consolidated Funds, or direct private investments.
- **Sector-Wide Coverage:** Includes highways, railways, power, ports, coal, mining, telecom, aviation, tourism and urban infrastructure.
- **Process Standardisation:** Emphasis on simplification and time-bound execution based on lessons from NMP 1.0.
- **Monitoring Mechanism:** Continuous oversight by empowered inter-ministerial group led by Cabinet Secretary.

Top 5 Sectoral Shares (FY 2026-30):

1. Highways, MMLPs & Ropeways – 26% (₹4.42 lakh crore)
2. Power Sector – 17% (₹2.76 lakh crore)
3. Railways – 16% (₹2.62 lakh crore)
4. Ports – 16% (₹2.63 lakh crore)
5. Coal – 13% (₹2.16 lakh crore)

Significance:

- Promotes asset recycling, enabling reinvestment into new infrastructure projects.
- Reduces dependence on direct budgetary expenditure for CAPEX.
- Strengthens PPP ecosystem and attracts long-term private investment.

TAKESHIMA/DOKDO ISLANDS



South Korea lodged a firm diplomatic protest against Japan's Takeshima Day, an annual event held in Shimane Prefecture to assert sovereignty over the disputed islets.

About Takeshima/Dokdo Islands

What it is?

- The territory is a cluster of small, rocky outcroppings located in the **Sea of Japan** (referred to as the **East Sea** by South Korea).
- **Composition:** It consists of two main volcanic islets – **Dongdo** (East Island) and **Seodo** (West Island) – along with roughly 30 to 90 smaller rocks and reefs.
- **Geographical Position:**
 - The islands lie roughly equidistant between the two nations but are physically closer to the South Korean island of **Ulleungdo** (approx. 87 km) than to Japan's **Oki Islands** (approx. 157 km).

History and Origin:

- **Ancient Records:** South Korea traces its claim back to the 6th-century **Silla Kingdom**, citing various historical maps and documents (like the Sejong Sillok Jiriji) that describe the islets as part of Korean territory.
- **1905 Annexation:** Japan officially incorporated the islands into Shimane Prefecture in 1905, declaring them terra nullius (nobody's land) during the Russo-Japanese War. South Korea views this as an illegal act of colonial aggression.

- **Post-WWII (1945-1954):** Following Japan's defeat in 1945, the islands were placed under Allied control. In 1954, South Korea established a permanent coast guard presence on the islands, effectively regaining control after the end of Japanese colonial rule.

Features:

- **Terrain:** Volcanic rocks formed in the Cenozoic era. They feature steep cliffs, numerous sea caves, and a harsh, humid climate.
- **Fisheries:** The surrounding waters are a Goldilocks zone where warm and cold ocean currents meet, creating one of the world's most fertile fishing grounds for squid, pollock, and cod.
- **Energy Potential:** Recent geological surveys suggest the seabed may hold **600 million tons of gas hydrates** (often called fire ice).
 - This natural gas resource is estimated to be worth nearly **\$10 billion annually**, making the islands a strategic energy asset.

Current Status:

- **De Facto Control:** South Korea maintains **effective control** over the islands, with a small detachment of police, lighthouse keepers, and a handful of residents.
- **Legal Stance:** South Korea refuses to take the matter to the **International Court of Justice (ICJ)**, arguing that there is no dispute to settle as the islands are an integral part of their sovereign territory.
- Japan continues to claim the islands as an inherent part of its territory, hosting Takeshima Day every February 22nd.

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