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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 Progresa 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

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.

- **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.

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.**

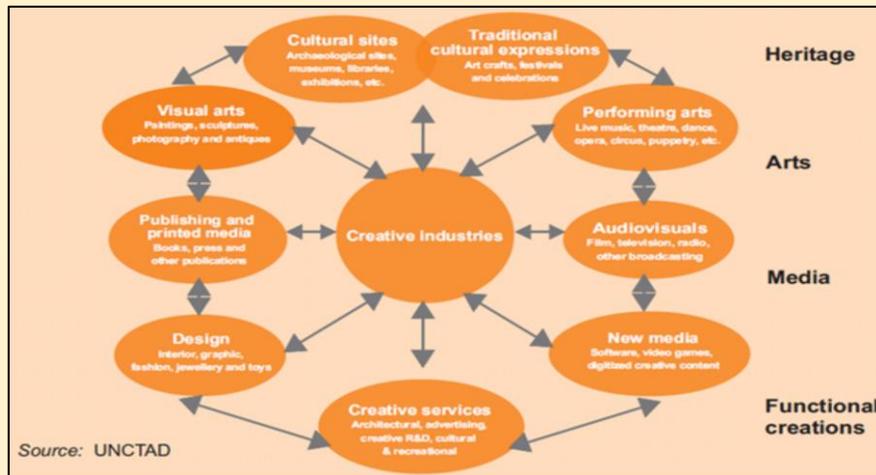
Significance:

- **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.**

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.



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 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.

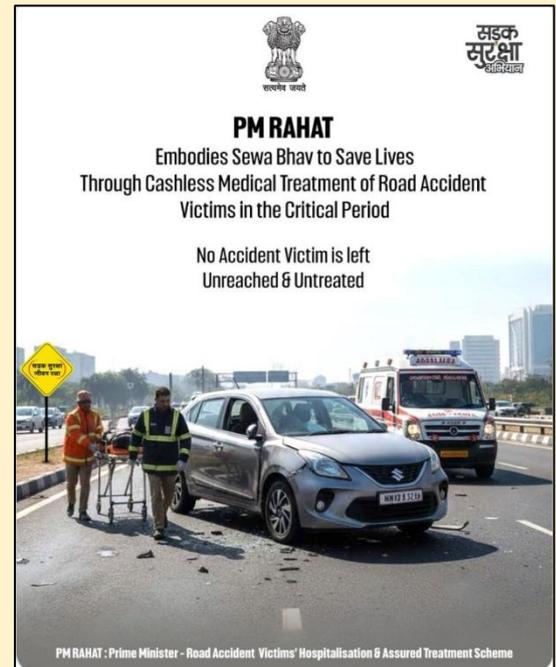
The new institute is expected to strengthen design education, support regional development, and complement the broader push to position creative and design-led industries as engines of sustainable employment growth.

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 (MVAf)**, 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:

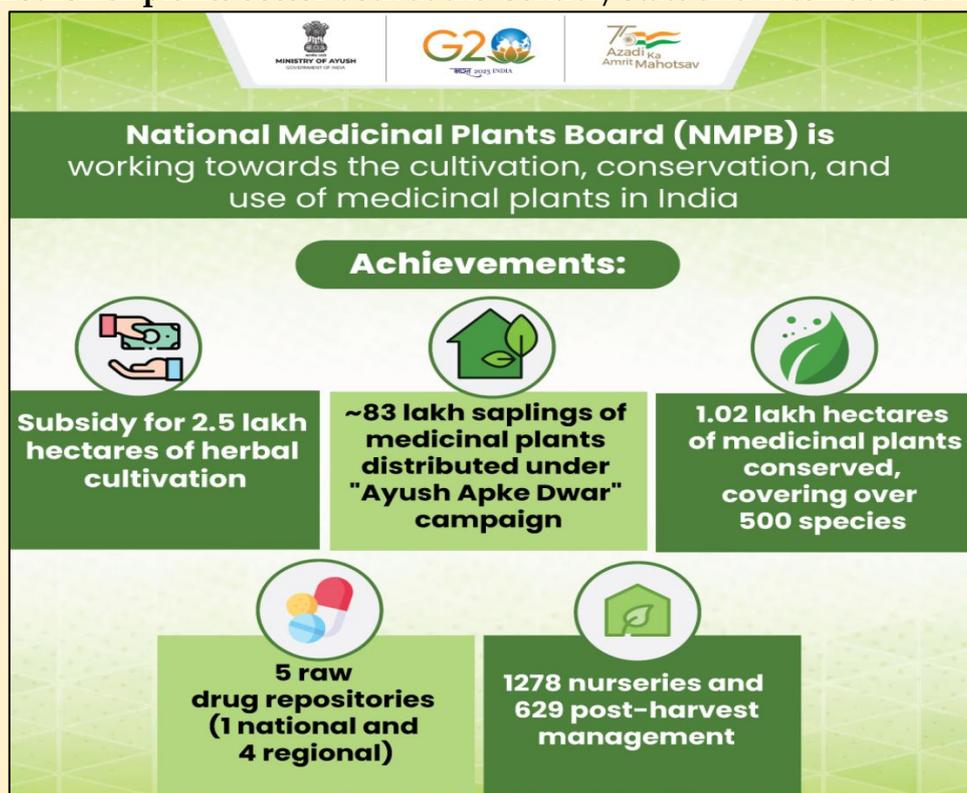
- **Location:** It is located at a gorge near the upstream Bhakra village in the **Bilaspur district of Himachal Pradesh**. It is near the border between Punjab and Himachal Pradesh.
- **River:** It is a concrete gravity dam across the **Sutlej River**.
 - **Uniqueness:** It is the **highest straight 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**.

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).
- **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.
 - **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.

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.
- **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.

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.

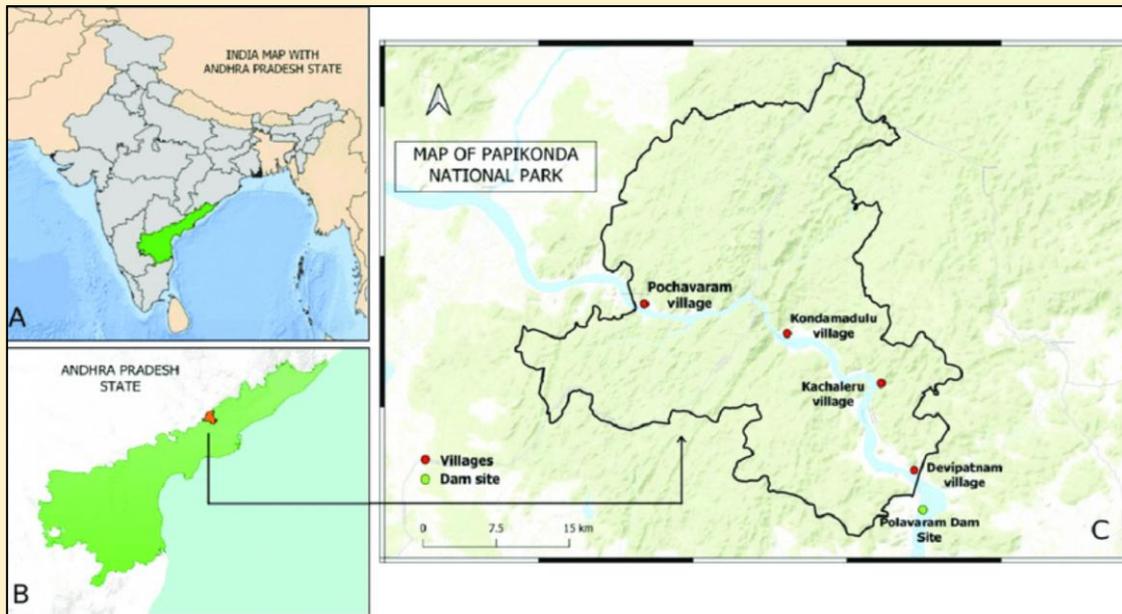


About G7 Summit:

- **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.
 - **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.

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.

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.
 - **Behaviour:** They are **monogamous and territorial** and they are known for spectacular aerial courtship displays involving cartwheeling with locked talons.
- **Indicator species:** It is an apex predator in coastal ecosystems, and is considered an **indicator of marine and coastal environmental health**.
- **Conservation Status:** It is classified under the category of '**Least Concern**' as per the IUCN Red Data List.

URBAN CHALLENGE FUND (UCF)

Recently, the Union Cabinet chaired by the Prime Minister of India approved the launch of the Urban Challenge Fund (UCF).

About Urban Challenge Fund (UCF):

- **Nodal ministry:** It is a new centrally sponsored scheme of the **Ministry of Housing and Urban Affairs**.
 - **Objective:** It aims to **build resilient, productive, inclusive and climate-responsive cities**, positioning those as key drivers of the country's next phase of economic growth.

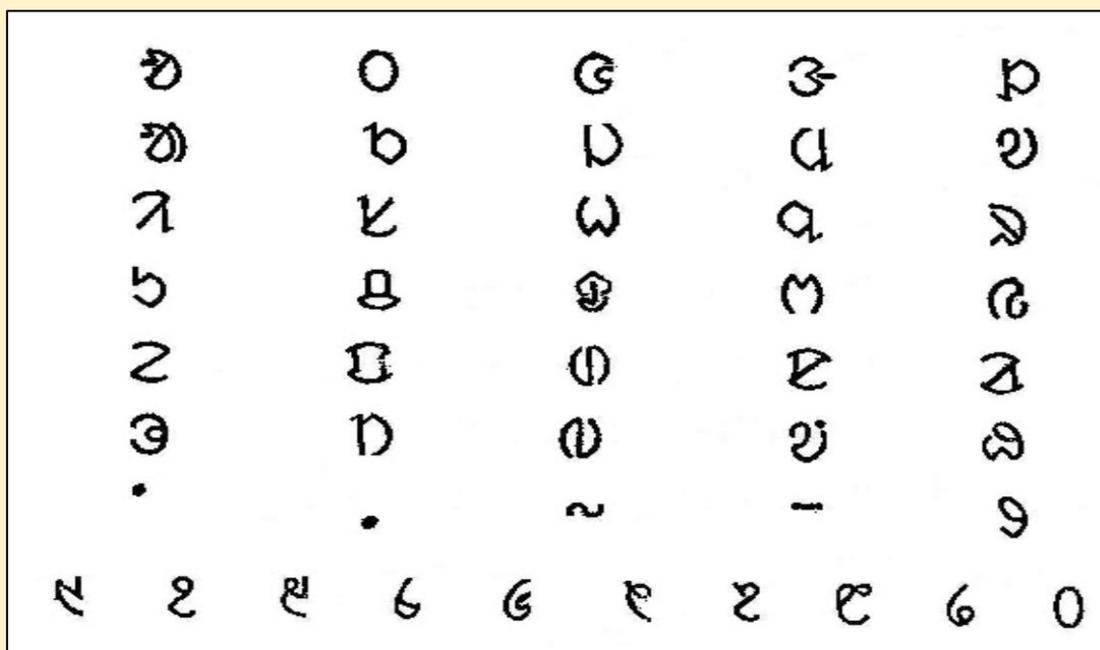


- **Financial outlay:** It provides for the total Central assistance of **₹1 lakh crore**.
 - **Tenure:** It will be operational from **FY 2025-26 to FY 2030-31**, with an extendable implementation period up to FY 2033-34.
 - **Financing mechanism:** A **minimum of 50 per cent of project financing has to be mobilised from market sources**, including municipal bonds, bank loans and Public-Private Partnerships (PPPs). The remaining share may be contributed by States, Union Territories (UTs), Urban Local Bodies (ULBs) or other sources.

- **Project selection:** Projects will be selected through a transparent and **competitive challenge mode**, ensuring support to high-impact and reform-oriented proposals.
- **Focus areas:** A strong thrust on **reforms across Urban Governance, Market & Financial systems, Operational efficiency**, and Urban Planning.
- **Emphasis on Tier-II and Tier-III cities:** A **dedicated ₹5,000 crore corpus** will enhance the creditworthiness of 4223 cities including Tier- II and Tier-III cities, particularly for first-time access to market finance.
- **Coverage:** The Fund will cover
 - **All cities with a population of 10 lakh or more** (2025 estimates);
 - **All State and Union Territory capitals not covered above;** and
- Major **industrial cities with a population of 1 lakh or more**
 - Additionally, **all ULBs in hilly States, North-Eastern States, and smaller ULBs with population below 1 lakh** will be eligible for support under the Credit Repayment Guarantee Scheme.

OL CHIKI SCRIPT

A commemorative coin and commemorative postage stamp were recently released by the Government of India to mark 100 years of the Ol Chiki script.



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





**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 encompasses 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

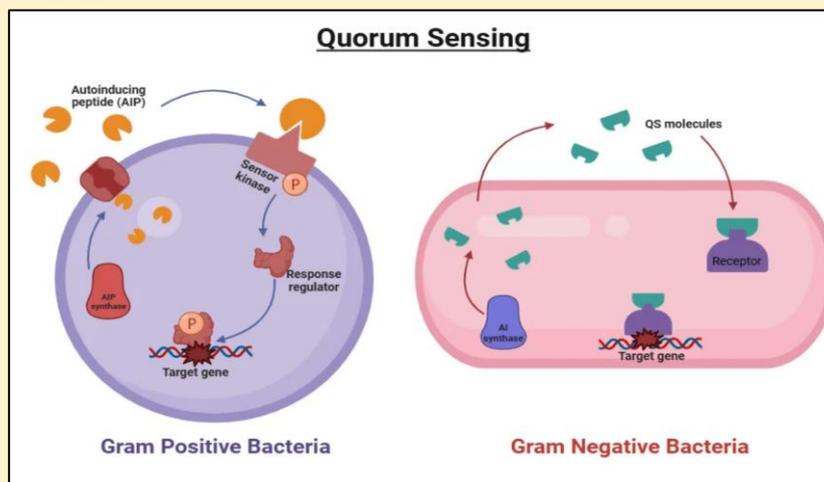
- To assist cooperative societies meet the objectives of **National Health Policy**,
- To assist cooperative societies participate in the **National Digital Health Mission**
 - To assist cooperative societies provide **comprehensive healthcare including** education, services, insurance and activities 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 **symbiotic processes and cell growth**; an example is the nitrogen-fixation mechanism of the bacterium *Rhizobium leguminosarum*.

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.
 - **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.

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

Unrivaled 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

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 (HEMS)
- 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 **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 Mijnaerends" 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

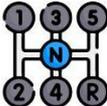
Early measurement attempts were hindered by the hole's twisting interior. Navigation systems struggled with angled walls and shifting passages. In 2017, researchers deployed a high-grade remotely operated vehicle fitted with precise positioning tools.

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.

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.

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Monthly Current Affairs Magazine





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