

Once found in plenty across the country, sacred groves have shrunk in many places due to rampant encroachments, the spread of invasive species, and unfettered human interference. “We had a lot of sacred groves, not only in South India, but also in the northeast,” notes S. Theodore Baskaran, conservationist and former trustee of World Wide Fund for Nature (WWF) India.

In Tamil Nadu’s arid northern Villupuram region, the Hindu Religious and Charitable Endowments (HR & CE) Department, which administers 1,500 temples in the Villupuram and Kallakurichi districts, has embarked on a project to protect these forest patches by recreating sacred groves. “Every temple has a Sthala Vriksham (sacred plant) and that denotes the importance given for plants and trees in the ancient days. A lot of these forest patches are found in Villupuram, Cuddalore, Puducherry, and the coromandel coast.

Researchers have developed a mRNA lipid nanoparticle vaccine that contains antigens from all 20 known subtypes of influenzas A and B viruses. The vaccine produced high levels of cross-reactive and sub-type γ -specific antibodies in mice and ferrets and could protect animals against disease symptoms and death after infection with both antigenically matched and mismatched strains of influenzas. Universal vaccine is important as it is difficult to predict which flu strain will cause the next flu pandemic.

Metrologists have agreed to stop adding ‘leap seconds’ to official clocks to keep them in sync with variations in Earth’s rotation. Leap seconds can disrupt systems based on precise time keeping because there is no set way to integrate them. Earth’s rotation has sped up since 2020 — normally over the long term, Earth’s rotation slows because of Moon’s pull. So, for the first time, a leap second might need to be removed rather than added. The practice of adding leap seconds will be put on hold from 2035.

The James Webb Space Telescope has spotted two leading contenders for what could be the most distant galaxy ever seen. If initial estimates are correct, light from these objects has travelled such great distances that they appear as they did just 350–450 million years after the Big Bang. Along with more of the telescope’s findings, these observations indicate that galaxies formed and evolved earlier in the Universe’s history than astronomers had been able to probe until now.

Leprosy is one of the world’s oldest and most persistent diseases but the bacteria that causes it may also have the surprising ability to grow and regenerate a vital organ. Scientists have discovered

AGRA, GHAZIABAD AND PRAYAGRAJ TO GET POLICE COMMISSIONERATE SYSTEM (PCS)

1. Decision to set up PCS has been taken due to increase in population, religious and cultural significance, tourism, provide better policing and maintain law and order. Districts would be declared as metropolitan cities as per rules of Code of Criminal Procedure (CrPC) before implementing PCS. Earlier, Lucknow and Noida adopted PCS followed by Kanpur and Varanasi.
2. Police Commissioner system (PCS)-Commissioner of Police (CP) is head of a unified police command structure, is responsible for force in city, and is accountable to state government. CP is drawn from Deputy Inspector General rank or above and is assisted by Special/Joint/Additional/Deputy Commissioners. Such police officer has power of preventive arrest, imposing Section 144 of CrPC Act and initiate chapter proceedings. Office also has magisterial powers, including those related to regulation, control, and licensing. Various committees constituted to suggest police reforms have recommended PCS implementation in cities which have population of more than 10 lakhs.
3. **Dual Command System (DCS)**- District Magistrate (DM) and Superintendent of Police (SP) share powers and responsibilities in a district. DM is entrusted with issuing arrest warrants, licenses while SP has powers and responsibilities to investigate crime and make arrests. System is designed to ensure lower concentration of power and making police more accountable to DM at district level.

INDIA-GULF COOPERATION COUNCIL (GCC) DECIDE TO PURSUE RESUMPTION OF FREE TRADE AGREEMENT (FTA) NEGOTIATIONS

1. India and GCC have agreed to expedite conclusion of the requisite legal and technical requirements for formal resumption of the FTA negotiations. Earlier in 2006 and 2008, both sides had negotiated a trade pact however it stopped later on. FTA is envisaged to be a modern, comprehensive Agreement with substantial coverage of goods and services. Expected benefits of FTA: Create new jobs, raise living standards, and provide wider social and economic opportunities in India and GCC countries.
2. **India-GCC relations:** Strategic relations: Gulf constitutes “immediate” neighbourhood of India separated only by Arabian Sea. Both share desire for political stability and security in the region. Trade and economic relations: GCC are currently India’s largest trading partner bloc with bilateral trade in FY 2021-22 valued at over USD 154 billion. GCC countries contribute almost 35% of India’s oil imports and 70% of gas imports.
3. **Top three exports to GCC members:** Crude petroleum, Petroleum gas, and Diamonds. Top three imports: Refined petroleum, jeweller, and rice. Approximately 50% of India’s remittances (largest recipient in world in 2021) comes from GCC region. Diaspora: GCC countries together host approximately 6.5 million Indians.
4. **GCC is a political and economic alliance of 6 countries in Gulf region** - Saudi Arabia, UAE, Qatar, Kuwait, Oman, and Bahrain. GCC was established in Riyadh, Saudi Arabia in 1981.

PETROLEUM NATURAL GAS REGULATORY BOARD (PNGRB) AMENDS NATURAL GAS NORMS TO HASTEN INFRA GROWTH

1. PNGRB has amended Natural Gas Pipeline Tariff, Authorisation and Capacity Regulations. It aims to provide access to natural gas in far-flung areas at competitive and affordable rates to achieve one nation one grid and one tariff objective. These amendments will act as stepping-stone for implementation of Unified Tariff regulations which will be effective from 1 April 2023.
2. **Key Amendments**- Increased number of unified tariff zones from 2 to 3 to protect overall interest of consumers in different regions. Entity level Integrated natural gas pipeline tariff has been introduced in regulations which will act as building block for unified tariff at national level. Natural Gas is an odourless, gaseous mixture of hydrocarbons—predominantly made up of methane. India, world’s 4th largest Liquefied Natural Gas (LNG) importer, aims to raise natural gas share in its energy mix from present 6% to 15% by 2030.
3. **Steps taken for Natural Gas**- City Gas Network (CGD): Under PNGRB Act 2006, PNGRB grants authorization to entities for developing CGD network in specified geographic area of country. Pradhan Mantri Urja Ganga Project: Provide clean energy to households and transportation in cities.

that parasites associated with leprosy can reprogramme cells to increase the size of a liver in adult animals without causing damage, scarring or tumours, as per a release.

The findings (Cell Reports Medicine) suggest the possibility of adapting this natural process to renew ageing livers and increase health span — the length of time living disease-free — in humans. The scientists found that the infected animals developed enlarged — yet healthy and unharmed — livers with the same vital components, such as blood vessels, and functional units known as lobules, as the uninfected and resistant armadillos.

One of the biggest fallout of the pandemic globally has been the low routine immunisation coverage of children. As per WHO data of November 23, 2022, nearly 40 million children globally had missed a measles vaccine dose last year. As a result, there were an estimated nine million measles cases and 1,28,000 deaths in 2021. The ongoing measles outbreak in Mumbai reflects the lower immunisation coverage due to disruption in vaccination services and hesitancy by parents to get their children vaccinated.

The Union government proposes to make birth certificate a mandatory document for almost every sphere of life — admission in educational institutions, inclusion in the voter list, appointment in Central and State government jobs, issue of driving licence and passport — according to a draft Bill to amend the Registration of Birth and Death (RBD) Act, 1969.

The Bill is likely to be tabled in the Winter Session of Parliament that commences on December 7. The proposed amendment also covers death certificates and makes it mandatory for hospitals to provide a copy of all death certificates, stating the cause of death, to the local registrar apart from the relative of the deceased.

4. **About Petroleum Natural Gas Regulatory Board (PNGRB)-** It was constituted under PNGRB Act, 2006. It aims to protect the interests of consumers and entities engaged in specified activities relating to petroleum, and natural gas.

SUPREME COURT NOTICES TO CENTRE ON PLEA TO RECOGNIZE SAME-SEX MARRIAGE

1. SC issues notices to centre on petition to grant legal recognition to same sex marriages and alliances between LGBTIQ+ community under Special Marriage Act (SMA), 1954. Earlier, petitioners had submitted that issue is sequel to Navtej Singh Johar and Puttaswamy judgments.
2. Under Puttaswamy case, privacy was declared as a fundamental right and Navtej Singh Johar case decriminalisation of consensual Homosexuality in 2018. SC held that LGBTIQ+ persons enjoy right to equality, dignity and privacy guaranteed by Constitution on same ground as all other citizens. However, legal framework governing marriage institution in India does not presently allow members of LGBTIQ+ community to marry the person of their choice.
3. This is violative of fundamental rights including Articles 14, 15, 19(1)(a). SMA, 1954 provides a civil form of marriage for couples who cannot marry under their personal law. It allows people from two different religious backgrounds to come together in marriage bond.
4. It lays down procedure for both solemnization and registration of marriage, where either of husband or wife or both are not Hindus, Buddhists, Jains, or Sikhs. Couples must serve a notice with relevant documents to Marriage Officer 30 days before intended marriage date.

WORK ON INDIA'S FIRST-EVER NIGHT SKY SANCTUARY IN LADAKH'S HANLE WILL BE OVER IN A MONTH

1. It is India's first dark sky reserve being set up by Council of Scientific and Industrial Research (CSIR) under Ministry of Science & Technology. It will be a part of Changthang Wildlife Sanctuary (CWS).
2. **Significance-**It will be one of the world's highest-located sites for optical, infra-red, and gamma-ray telescopes. It will boost Astro-tourism in the region giving a boost to local tourism and economy through science. It aims to work towards the preservation of the night sky from unwanted light pollution and illumination, which is a serious threat to scientific observations and natural sky conditions.
3. About Dark sky Reserves- It is a designation given to a place that has policies in place to ensure that a tract of land or region has minimal artificial light interference. International Dark Sky Association, a U.S.-based non-profit, designates places as International Dark Sky Places, parks, sanctuaries and reserves, depending on criteria they meet.
4. Cloudless skies and low atmospheric water vapour of Hanle make it one of the best sites in world for astronomical observations. CWS is located in the Ladakhi Changthang Plateau, home to highest lake on earth, Tso Moriri. Species: snow leopard, Tibetan wolf, wild yak, bharal, etc.

INSIDER TRADING

1. SEBI recently amended norms to bring buying and selling of mutual fund units under insider trading rules. SEBI has categorised front-running as a form of market manipulation and insider trading, and penalised several fund houses over this activity.
2. **Insider trading refers to practice of purchasing or selling publicly-traded company's securities while in possession of material information that is not yet public information.**
3. **Front-running** is a market malpractice where a dealer, trader or fund manager who is aware of a large upcoming share purchase order buys same share in advance in bulk.



“If you wish to make a difference in your career, you got to be sitting on one buttock.”

DR. KHAN
(KSG)