

November

26

CRUX 10

10 News. 10 Sources. One Place



MK Yadav Sir



The Indian **EXPRESS** live **mint** **पॉइंट**

DownToEarth
FORTNIGHTLY ON POLITICS OF DEVELOPMENT,
ENVIRONMENT AND HEALTH

**Science
Reporter**



विज्ञान एवं
प्रौद्योगिकी मंत्रालय
MINISTRY OF
SCIENCE AND
TECHNOLOGY

Table of Contents

- 1 Kudankulam Nuclear Plant
- 2 Acute Respiratory Syndrome
- 3 Insider Trading
- 4 Digital Locker
- 5 GST Compensation Cess
- 6 Special Marriage Act 1954
- 7 Sangeet Natak Akademi Awards
- 8 Night Sky Sanctuary
- 9 Leprosy Disease
- 10 Arctic Amplification

KUDANKULAM NUCLEAR POWER PLANT

(Syllabus: GS Paper 3 - Infrastructure - Energy)

Russia offers advanced fuel option for Kudankulam plant

The new nuclear fuel is expected to bring in more efficiency and allow reactors to run for an extended two-year cycle without stopping; this will lead to sizeable savings in foreign exchange

The Hindu Bureau
TIRUNELVELI

The Russian state-owned nuclear energy corporation Rosatom has offered a more advanced fuel option to India's largest nuclear power station at Kudankulam, which will allow its reactors to run for an extended two-year cycle without stopping to load fresh fuel.

Rosatom's nuclear fuel division, TVEL Fuel Company, is the current supplier of TVS - 2 M fuel for the two VVER 1,000 MWe



TVEL's Research and Development Wing presented the new fuel technology at a recent conference in Hyderabad. FILE PHOTO

reactors generating power in the Kudankulam Nuclear Power Project (KKNPP). This fuel has an 18-month fuel cycle, mean-

ing that the reactor has to be stopped for fresh fuel loading every one-and-a-half years. TVEL has now offered the more modern

Advanced Technology Fuel (ATF), whose fuel cycle is a whopping 24 months. Hence, it will ensure more efficiency, additional power generation due to prolonged operation of the reactor and sizeable savings of the foreign exchange needed to buy fresh fuel assemblies from Russia. At a recent conference in Hyderabad, the senior vice-president of TVEL's Research and Development Wing, Alexander Ugryumov, presented the new fuel technology to the Indian nuclear reactors, a Rosatom statement said.

Kudankulam Nuclear Power Plant

- **About:** It is the single largest nuclear power station in India.
- **Location:** Situated in Koodankulam in the Tirunelveli district of Tamil Nadu.
- **Construction:** It is a Civilian Nuclear Power Plant, built by India in joint-collaboration with Russia.
 - There are a total of 7 operating nuclear power plants in India, and all of these facilities are a part of India's Critical Information Infrastructure.
- **Capacity:** It is scheduled to have six water-water energy reactor-1000 reactors with an installed capacity of 6,000 MW of electricity.
 - Unit 1 and 2 have started generating electricity.
 - Unit 3 and 4 are under construction.

Context: Russia has offered new technologies and solutions for the nuclear fuel cycle of India's atomic power plants that are aimed at enhancing the efficiency of the reactors at the Kudankulam power project.

INDIA PLANNING HUGE INCREASE IN NUCLEAR POWER

India is making nuclear power one of its key policy initiatives, with plans to build 48 new reactors and boost output to 63,000 megawatts by 2032- an almost 14-fold increase on current levels. The country's existing 20 nuclear reactors generate about 4,700 megawatts



Zuventus 1st in world to launch aviptadil for ARDS commercially

Discovered in 1970, the drug was tested on severe Covid-19 patients on DCGI's direction

SOHINI DAS
Mumbai, 25 November



LEAP OF SUCCESS

- ▶ **Aviptadil is a 50-year old drug** discovered by Dr Sami Said in the US
- ▶ **Commercially stable formulation of** Aviptadil for ARDS was out of reach
- ▶ **Universities made the drug and** supplied to hospitals as the last resort
- ▶ **Zuventus approached DCGI with a** formulation that is commercially stable
- ▶ **Got approval for clinical trials** last year
- ▶ **DCGI approved aviptadil for** treatment of patients with severe Covid-19 with ARDS
- ▶ **Firm will continue to seek permission** for additional use in ARDS

Mumbai-based Zuventus Healthcare has become the first company globally to commercially launch aviptadil, over 50-year old drug molecule, for treating acute respiratory distress syndrome (ARDS).

The drug was discovered by Dr Sami Said, pulmonary medicine specialist, in 1970. Aviptadil—a complex peptide—was not commercially used for ARDS, though prescribed as a last resort (orphan drug); it is prepared by Universities for emergency use by hospitals, the company said.

The use of aviptadil (a vasoactive intestinal peptide) restores respiration and reduces mortality in patients with ARDS. "Aviptadil is safe and effective in tackling respiratory failure, shortens recovery time, decreases respiratory distress, and prevents deaths in patients suffering from respiratory failure. However, a commercially stable formulation of aviptadil for such purpose was still out of reach," Zuventus said.

Company sources told *Business Standard* that the process of manufacturing aviptadil is extremely complex, and so far none has attempted to manufacture it commercially. "Aviptadil in combination with phentolamine is used to treat erectile dysfunction. However, aviptadil alone has never been commercially made for treating ARDS," the person said.

Based on its R&D, Zuventus approached the Drugs Controller General of India (DCGI) with such a formulation that was proposed to be allowed for emergency use. The Subject Expert Committee (SEC), however, asked the firm to do a detailed clinical trial in severe Covid-19 patients as an additional intervention.

"After the successful completion of the clinical trial, the product has been approved for the treatment of patients with

severe Covid-19 with ARDS... The firm will continue to seek permission for additional use in ARDS in line with permission from the EU and the US," it said on Friday.

The trial began last year, and took about 9-10 months. Sources indicated that the DCGI reviewed the data multiple times before giving approval. The trial has been conducted on around 150 patients. Hyderabad-based Dr Reddy's Laboratories, too, sought DCGI permission to conduct the phase 3 clinical trial on aviptadil. DRL could not be reached for immediate comment.

The USFDA has granted 'orphan drug' designation to aviptadil for ARDS and chronic lung diseases. Last year, NeuroRx and Relief Therapeutics announced phase 2/3 clinical trials of this drug on critical Covid-19 patients. Several drugs were repurposed during Covid-19, for example, remdesivir, which was originally developed for Ebola.

ACUTE RESPIRATORY DISTRESS SYNDROME

(Syllabus: GS Paper 3 - Sci & Tech)

Context: Mumbai based Zuventus Healthcare has become the first company globally to commercially launch aviptadil, over 50 year old drug molecule, for treating acute respiratory distress syndrome (ARDS).

Acute respiratory distress syndrome

- **About:** Acute respiratory distress syndrome (ARDS) occurs when fluid builds up in the tiny, elastic air sacs (alveoli) in our lungs.
 - The fluid keeps our lungs from filling with enough air, which means less oxygen reaches our bloodstream. This deprives our organs of the oxygen they need to function.
 - ARDS typically occurs in people who are already critically ill or who have significant injuries.
- **Symptom:**
 - Severe shortness of breath
 - Labored and unusually rapid breathing
 - Low blood pressure
 - Confusion and extreme tiredness
- **Causes of ARDS include:**
 - **Sepsis:** The most common cause of ARDS is sepsis, a serious and widespread infection of the bloodstream.
 - **Inhalation of harmful substances:** Breathing high concentrations of smoke or chemical fumes can result in ARDS, as can inhaling (aspirating) vomit or near-drowning episodes.
 - **Severe pneumonia:** Severe cases of pneumonia usually affect all five lobes of the lungs.
 - **Head, chest or other major injury:** Accidents, such as falls or car crashes, can directly damage the lungs or the portion of the brain that controls breathing.
 - **Coronavirus disease 2019 (COVID-19):** People who have severe COVID-19 may develop ARDS.
 - **Others:** Pancreatitis (inflammation of the pancreas), massive blood transfusions and burns.
- **Treatment:** In most ARDS cases, a breathing machine called a **ventilator** is used to increase oxygen in the body and force fluid out of the lungs.

TRUSTEES, OTHER CONNECTED ENTITIES TOO COVERED BY THE NORMS

Sebi brings mutual fund managers, directors under insider trading rules

ENSECONOMICBUREAU
MUMBAI, NOVEMBER 25

WITH SEVERAL cases of insider trading in mutual funds coming to light recently, the Securities and Exchange Board of India (SEBI) has finally brought fund managers, directors of fund houses, trustees and other connected entities under the ambit of insider trading rules.

Listing detailed guidelines in the gazette, the regulator said connected entities will include board of directors and key management personnel of sponsor of the mutual fund, directors or employees of registrar and share transfer agents and custodians or valuation agencies of the mutual fund who have access or are reasonably expected to have access to unpublished price sensitive information relating to a mutual fund scheme or its units in the course of business operations.

The Sebi board had earlier

cleared the proposal. Fund managers of some fund houses had indulged in front running, making a huge money in the manipulation. Front-running, which is illegal in India, involves purchasing a stock based on advance exclusive information regarding an expected large transaction that will affect its price. Sebi has categorised front-running as a form of market manipulation and insider trading, and penalised several fund houses and fund managers in the past over this activity.

It has also brought an official or an employee of fund accountant providing services to a mutual fund, an official or an employee of a self-regulatory organization, an official of a stock exchange for dissemination of information, directors or employees of auditor, legal advisor or consultants of the mutual fund or asset management company, a banker of the mutual fund or AMC and a concern, firm, trust, HUF, company or association of persons wherein a director

EXPLAINED

E Off-market trades

OFF-MARKET trades should be reported by the insiders to the asset management company within two working days. Every asset management company should notify the particulars of such trades to the stock exchange

of an AMC and Trustees or his immediate relative or banker of the company, has more than ten per cent of the holding or interest under the rules.

Sebi said no insider should trade in the units of a scheme of a mutual fund, when in possession of unpublished price sensitive information, which may have a material impact on the net asset value

of a scheme or may have a material impact on the interest of the unit holders of the scheme.

Off-market trades should be reported by the insiders to the asset management company within two working days. Every asset management company should notify the particulars of such trades to the stock exchange or in any other manner as may be specified by the Board within two trading days from receipt of the disclosure or from becoming aware of such information.

According to the Sebi, an AMC should, on such date as may be specified by the Board and on a quarterly basis, disclose the details of holdings in the units of its mutual fund schemes, on an aggregated basis, held by the designated persons of asset management company, trustees and their immediate relatives on the platform of stock exchanges or in any other manner as may be specified by the Board.

It said details of all the trans-

actions in the units of its own mutual funds, above such thresholds as may be specified by the Board, executed by the designated persons of an AMC, trustees and their immediate relatives should be reported by the concerned person to the Compliance Officer of the AMC within two business days from the date of transaction.

Further, it said the board of directors of every AMC should ensure that the chief executive officer or managing director should formulate a code of conduct with their approval to regulate, monitor and report dealings in mutual fund units by the designated persons and immediate relatives of the designated persons towards achieving compliance with these regulations.

The AMC board and the boards or heads of the organisation of intermediaries and fiduciaries, should also ensure that the MDs and CEOs or such other analogous person complies with these regulations.

INSIDER TRADING

(Syllabus: GS Paper 3 - Economy)

Context: With several cases of insider trading in mutual funds coming to light recently, the Securities and Exchange Board of India (SEBI) has finally brought fund managers, directors of fund houses, trustees and other connected entities under the ambit of insider trading rules.

Insider Trading

- **About:** It basically refers to the buying, selling or trading of shares or other securities (such as bonds or stock options) of a listed company using **unpublished price-sensitive information (UPSI)** that can affect the stock price that has not been disclosed yet.
 - UPSI refers to a **piece of exclusive information** related to a firm's stock prices, quarterly results, acquisition deals, mergers or any kind of sensitive activities that have not been shared with the public at large.
 - When insiders are able to access the UPSI, they **illegally conduct trade dealings for personal gains**.
- **Implications:** Insider trading **hurts the integrity of capital markets**.
- **Measures:** To prevent such acts and to promote fair trading in the market for the interest of common investors, the stock market regulator **SEBI has prohibited** the firms from purchasing their own shares from the secondary market.
 - SEBI regulations **define an 'insider'** as someone who is a connected person or has access to UPSI.
 - A **connected person can be anyone** who during the six months preceding the insider trade has been associated with the company in some way.
 - This **could be a company director or employee** or their close relatives, or a legal counsel or banker to the company or even an official of the stock exchanges or trustees or employees of an asset management company who interacted with the company.

Recommendation of Kotak committee on Insider trading:

- The committee has **recommended flow of unpublished price sensitive information (UPSI)** shall be considered for **'legitimate purpose'**, and not an offence under the SEBI (Insider Trading) for those who:
 - Is part of the promoter group.
 - Has a nominee director on the board.
- The information should be **pursuant to a formal agreement** in accordance with the regulations.
- Communication of information must **comply with the Insider Trading Regulations**.

No relief for Karza on DigiLocker ban

Arti Singh

arti.singh@livemint.com

NEW DELHI

Karza Technologies Pvt. Ltd still faces a ban over know-your-customer, or KYC, violations on DigiLocker, almost a month after a probe was initiated against the e-KYC solutions provider, said two people in the know.

In October, DigiLocker sent a letter to partners saying there was a violation of DigiLocker

terms of services and the Aadhaar Act by Karza, and one of its partner firms was found bypassing DigiLocker's redirection sign-in-signup flow and capturing Aadhaar data directly on its

user interface. Subsequently, the firm's account was blocked on the portal pending investigation. *Mint* has reviewed a copy of the letter.

DigiLocker is now consulting with UIDAI and is awaiting its response before taking a call on Karza's ban, one of the two people said seeking anonymity.

DigiLocker offers electronic storage of KYC documents and

is an initiative of the electronics and IT ministry. It is also the de-facto Aadhaar verification interface for most e-KYC solutions. DigiLocker terms of services say the sign-in-signup process happens on the platform's page and any user getting their KYC processed through DigiLocker or access their account must do it on the platform.

"Karza was required to log on to the DigiLocker page to enter user information, but the firm created a blank page and asked

users to key in their information on the page. Then it populated the data on the DigiLocker site, which is in complete violation of the terms," he added. "Basically, Karza was in violation of

the terms of services as it used automation to initiate Aadhaar consent on another web page, and not on DigiLocker directly, without the customers knowledge," he added.

DigiLocker found Karza was also extending its services to other entities. "This is also in violation, as all entities must directly integrate with the DigiLocker portal for the services."

DigiLocker sent a letter in October citing violation of Aadhaar Act and DigiLocker terms of services by Karza

DIGITAL LOCKER

(Syllabus: GS Paper 3 - Sci & Tech)

Context: Karza Technologies Pvt. Ltd still faces a ban over know-your-customer, or KYC, violations on DigiLocker, almost a month after a probe was initiated against the e-KYC solutions provider, said two people in the know.

Digital Locker

- **About:** A key initiative under **Digital India**, the Indian Government's flagship program aimed at transforming India into a digitally empowered society and knowledge economy.
- **Origin:** Launched by the Electronics and Information Technology Department of the Indian Government in February 2015.
- **Nodal Ministry:** Ministry of **Electronics and Information Technology (MeitY)**.
- **Key Features:**
 - Provide citizens with real-time **access to dematerialised documents** issued by various Government and Private Agencies.
 - Provide citizens with a **shareable private space** on a public cloud and make all documents/certificates available on this cloud itself.
 - The storage space **provided was 100 MB initially and was later increased to 1 GB**.
 - The individual file size for upload **cannot exceed 10 MB**.
 - This **digital space can be utilized for storing personal documents** such as university certificates, PAN cards, voter IDs, the URIs of the e-documents issued by various departments.
- **Main components of the Digital Locker Ecosystem are:**
 - **Citizens:** An individual who uses the Digital Locker service based on the **Aadhaar number**.
 - **Issuers:** Any public or private sector entity/organisation/department issuing digitally signed e-documents to individuals/entities and making them available within a repository for access through a digital locker of their choice. The issuer is also **responsible to revoke/invalidate their own documents**.
 - **Requesters:** An **entity/organisation/department** requesting secure access with user consent to specific e-documents stored across the ecosystem to provide paperless service to end users.
- **Three main technology components of the Digital Locker:**
 - **Repository:** It is a **Collection of e-Documents** that are uploaded by issuers in a standard format
 - **Access Gateway:** It provides a **secure online mechanism** for requesters to access e-documents from various repositories in real-time using e-Documents URI (Uniform Resource Indicator)
 - **DigiLocker Portal:** It is a **dedicated cloud-based personal storage space**, linked to each resident's Aadhaar for storing e-documents, or URIs of e-documents.

Centre Releases ₹17,000 cr to States as GST Compensation

Our Bureau

New Delhi: The Centre on Friday released ₹17,000 crore to states towards the balance of Goods and Services Tax (GST) compensation. This takes the total amount released so far in the fiscal year to over ₹1.15 lakh crore.

“With this, the Centre has released in advance the entire amount of cess estimated to be collected this year till March-end available for payment of compensation to states,” the ministry said in a statement.

Including this ₹17,000 cr, the total amount released so far in the fiscal year comes to over ₹1.15 lakh crore

GST was introduced with effect from July 1, 2017, and states were assured of compensation for loss of revenue arising on account of its implementation for five years.

To provide compensation to states, a cess is levied on certain goods and the amount of cess collected is credited to the compensation fund.

The Centre released an amount of ₹17,000 crore to states and Union Territories on November 25, towards the balance GST compensation for the April-June period, it said.

The total amount of compensation released to states/UTs so far, including this amount for 2022-23 is ₹1,15,662 crore, according to the statement.

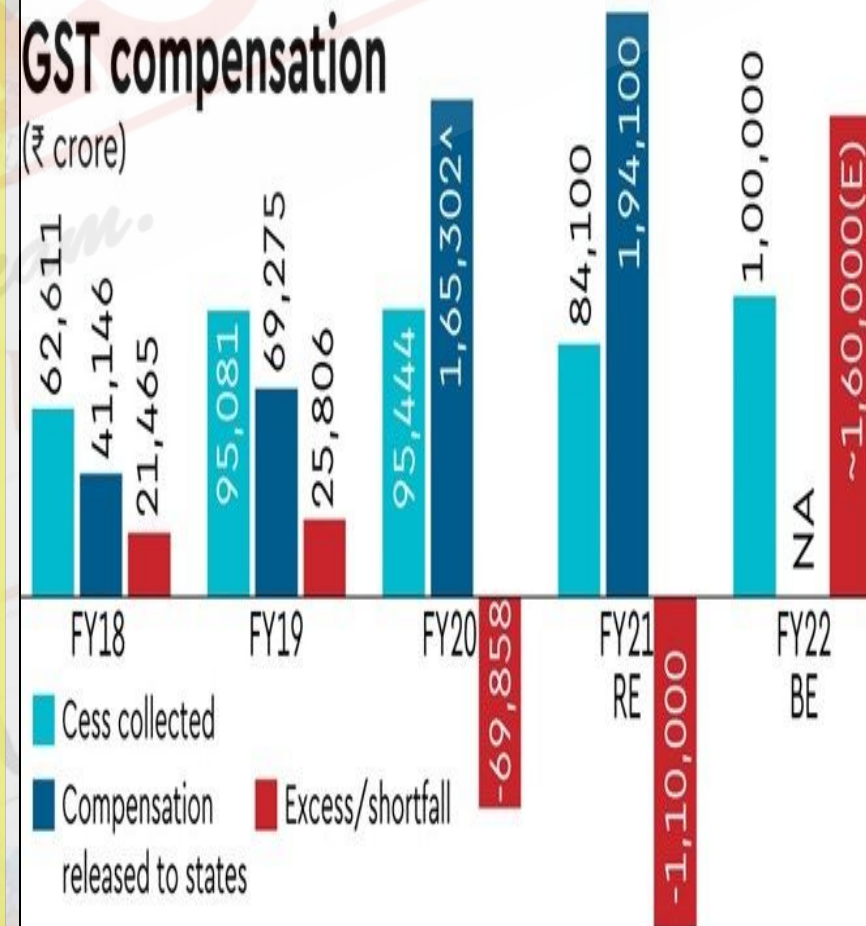
Context: The Centre released ₹17,000 crore to states towards the balance of Goods and Services Tax (GST) compensation.

GST compensation Cess

- **Compensation Cess under GST regime:** States are guaranteed compensation for any revenue shortfall below 14% growth (base year 2015-16) for the first five years ending 2022.
 - **Origin:** Due to the consumption-based nature of GST, manufacturing states like Gujarat, Haryana, Karnataka, Maharashtra and Tamil Nadu feared a revenue loss.
 - Thus, GST Compensation Cess or GST Cess was introduced by the government to compensate for the possible revenue losses suffered by such manufacturing states.
- **Distributing GST compensation:** The compensation cess payable to states is calculated based on the methodology specified in the GST (Compensation to States) Act, 2017.
 - It is levied on five products considered to be ‘sin’ or luxury as mentioned in the GST (Compensation to States) Act, 2017 and includes items such as Pan Masala, Tobacco, and Automobiles etc.
 - GST compensation is paid out of Compensation Cess every two months by the Centre to states.
 - All the taxpayers, except those who export specific notified goods and those who have opted for GST composition scheme, are liable to collect and remit the GST compensation cess to the central government.
- **Compensation Cess Fund:** The GST Act states that the cess collected and the amount as may be recommended by the GST Council would be credited to the fund.
 - Any unused money from the compensation fund at the end of the transition period shall be distributed between the states and the centre as per any applicable formula.

GST compensation

(₹ crore)



^Besides surplus from cess pool of previous years, ₹33,412 crore unutilised I-GST collections were for FY18 used to compensate states in the year

SC seeks Centre's response on legalising same-sex marriages

Gay Partners Seek Gender-Neutral Spl Marriage Act

Dhananjay Mahapatra
@timesgroup.com

New Delhi: Four years after decriminalising consensual private sexual relationship between adults of LGBTQ+ communities, the Supreme Court on Friday agreed to examine legalising same-sex marriages in India as it sought the Union government's response to the pleas of two gay couples for making Special Marriage Act (SMA), 1954, gender-neutral.

A bench of Chief Justice DY Chandrachud and Justice

IN THE COURTS

► Over 700 applications received but **govt will not open any fresh window to exchange demonetised notes**, attorney general tells SC | **P 15**

► **Opposing a plea to cancel names and symbols of political parties** which resonate with religion, EC tells SC there is no express provision to do so | **P 15**

► Amid concern over short

video clips in social media about judicial proceedings, CJI says efforts on to create a judicial telecast platform | **P 15**

► Single-judge bench of Bombay HC recuses from hearing ED's plea to cancel bail to Sena's Sanjay Raut | **P 14**

► HC grants bail to ex-MD & CEO of YES Bank Rana Kapoor in laundering case | **P 15**

Hima Kohli issued notice to the Centre and asked it to file its response in four weeks to two petitions — one filed by Hyderabad-based partners Supriyo aka Supriya Chakraborty and Abhay Dang, and the other by Delhi-based part-

ners Parth Phiroze Mehrotra and Uday Raj.

The SC also enlisted the assistance of attorney general R Venkataramani by issuing notice to him.

► **Violates basic rights, P 15**

Conditions for marriage:

- The resulting marriage should be **monogamous for both parties**.
- The groom must be at least **21 years old**; the bride must be at least **18 years old**.
- The parties should be competent in regard to their **mental capacity** to the extent that they are able to give valid consent for the marriage.
- The parties should not fall within the **degree of prohibited relationship**.

SPECIAL MARRIAGE ACT (SMA), 1954

(Syllabus: GS Paper 1 - Indian Society)

Context: Four years after decriminalising consensual private sexual relationship between adults of LGBTQ+ communities, the Supreme Court agreed to examine legalising same-sex marriages in India as it sought the Union government's response to the pleas of two gay couples for making **Special Marriage Act (SMA), 1954**, gender-neutral.

Special Marriage Act (SMA), 1954

- **About:** An Act of the Parliament of India with **provision for civil marriage or "registered marriage"**.
 - The fundamental requirement under this Act for a valid marriage is the **consent of both parties to the marriage**.
 - When a person solemnised marriage under this law, then the marriage is **not governed by personal laws** but by the **Special Marriage Act**.
 - Marriages in India can be registered under the respective personal laws Hindu Marriage Act, 1955, Muslim Marriage Act, 1954, or under the Special Marriage Act, 1954.
 - It is the **duty of the Judiciary** to ensure that the rights of both the husband and wife are protected.
- **Key Provisions:**
 - **Prior notice:** As per **Section 5 of the Act** Couples have to serve a notice with the relevant documents to the Marriage Officer **30 days** before the intended date of marriage.
 - **Registration:** Both parties are required to be present after the submission of documents for issuance of public notice inviting objections.
 - **Registration is done 30 days** after the date of notice after deciding any objection that may have been received during that period by the SDM.
 - Both parties along with three witnesses are required to be present on the date of registration.
- **Key Features:**
 - **Any person**, irrespective of religion.
 - **Hindus, Muslims, Buddhists, , Sikhs, Christians, Parsis, or Jews** can also perform marriage under the Special Marriage Act, 1954.
 - **Inter-religion** marriages.
 - Applicable to the **entire territory of India** and extends to intending spouses who are both - Indian nationals and Indian national living abroad.

Sangeet Natak Akademi announces Sangeet Natak Akademi Awards (Akademi Puraskar) for the years 2019, 2020 & 2021.

Context: The General Council of Sangeet Natak Akademi, the National Academy of Music, Dance and Drama, New Delhi, at its meeting held from 6-8 November 2022 at New Delhi unanimously elected Ten (10) eminent personalities in the field of performing arts as **Akademi Fellows**.

- The General Council also selected one hundred and twenty-eight (128) artists from the field of Music, Dance, Theatre, Traditional/Folk/Tribal Music/Dance/Theatre, Puppetry and Overall contribution/scholarship in the Performing Arts for the **Sangeet Natak Akademi Awards (Akademi Puraskar)** for the years 2019, 2020 & 2021.

Sangeet Natak Akademi Fellowship

- **About:** The highest honour conferred by Sangeet Natak Akademi without distinction of nationality, race, caste, religion, creed, or sex.
- **Fellowship money:** The honour of Akademi Fellow carries a purse money of **Rs.3,00,000/- (Rupees three lakh)** along with a Tamrapatra and Angavastram.
 - The Fellowship of the Akademi is the **most prestigious and rare honour**, which is restricted to 40 numbers at any given time.

Sangeet Natak Akademi Awards

- **About:** An award given by the Sangeet Natak Akademi, **India's National Academy of Music, Dance & Drama**.
- **Categories:** It is the highest Indian recognition given to people in the field of performing arts.
 - The awards are given in the **categories of music, dance, theatre**, other traditional arts and puppetry, and for contribution/scholarship in performing arts.
- **Award Money:** The award earlier in 2003, consisted of Rs. 50,000, a citation, an angavastram (a shawl), and a tamrapatra (a brass plaque).
 - Since 2009 cash prize has been increased to **₹1,00,000**.

Sangeet Natak Akademi

- **About:** The national level academy for performing arts **set up by the Government of India**.
- **Origin:** It was set up by the **Indian education ministry** on 31 May 1952 and became functional the following year, with the appointment of its first chairman, Dr. P. V. Rajamannar.
- **Current Status:** It is presently an **Autonomous Body of the Ministry of Culture**, Government of India and is fully funded by the Government for implementation of its schemes and programmes.
- **Functions:** The academy functions as the **apex body of the performing arts** in the country to preserve and promote the vast cultural heritage of India expressed in music, dance and drama.

Work on India's first-ever Night Sky Sanctuary in Ladakh's Hanle going on in full swing and shall be complete in over a month's time

Context: The work on **India's first-ever Night Sky Sanctuary**, being set up by CSIR under Union Ministry of Science & Technology, in **Ladakh's Hanle** is going on in full swing and shall be complete in over a month's time.

Night Sky Sanctuary

- **About:** A unique and first-of-its-kind initiative by the Indian government which will boost **Astro tourism** in India.
- **Origin:** In September 2022, the **Department of Science & Technology (DST)** has announced the setting up of India's first Dark Sky Reserve in Hanle, Ladakh.
 - A Dark Sky Reserve 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**.
 - The **International Dark Sky Association** is a U.S.-based non-profit that designates places as International Dark Sky Places, Parks, Sanctuaries and Reserves, depending on the criteria they meet.
- **Participants:** A **tripartite MoU** was signed among the the UT administration, Ladakh Autonomous Hill Development Council (LAHDC) Leh and the Indian Institute of Astrophysics (IIA) for launching the Dark Space Reserve.
- **Location:** Located at Hanle in **Ladakh** as a part of **Changthang Wildlife Sanctuary**.
 - The **cloudless skies and low atmospheric water vapour** make it one of the best sites in the world for optical, infrared, sub-millimetre, and millimetre wavelengths.
- **Significance:** It will have activities to help in **boosting local tourism and economy** through interventions of Science and Technology.
 - It will be one of the **world's highest-located sites** for optical, infrared, and gamma-ray telescopes.



Malady to miracle: Leprosy bacteria grows liver in armadillos, gives hope for human organ regeneration

Study finds bacteria of the chronic infectious disease reprogrammed certain cells into 'stem-like cells'

By Taran Deol
Published: Friday 25 November 2022



Initiatives taken

- **WHO leprosy strategy:** The Global Leprosy Strategy 2021–2030 guides the countries to accelerate progress towards zero leprosy, in line with the Sustainable Development Goals.
- **National Leprosy Control Programme:** India started the National Leprosy Control Programme in 1955. It was only in 1970s that a definite cure was identified in the form of **Multi-Drug Therapy (MDT)**.
- **National Leprosy Eradication Programme (NLEP):** It is a **Centrally Sponsored Health Scheme** and it has been implemented with the major objective of reducing the disease burden, prevention of disability and to improve awareness among the mass about Leprosy and its curability.
- **SPARSH Leprosy Awareness Campaign:** It was launched to **promote awareness and address the issues** of stigma and discrimination in 2017.

Context: A group of researchers have found that **armadillo** livers grew substantially when infected with **Mycobacterium leprae**.

Key Points

- Armadillos came into the picture because they are **among the few animals that leprosy bacteria infect**.
- The bacteria was performing something akin to '**biological alchemy**' - a bacterial pathogen was changing the biology of infected cells to become more 'valuable' such that it can promote the growth of a vital organ like the liver in living animals.
- No currently available **cell therapy** can rival this mysterious mechanism.
- The **leprosy bacteria** need functional cells to function within it because of its dependency on the host to survive and replicate.
- If successful, this discovery may be **lifesaving for the two million annual deaths** due to liver disease for which there is no licensed therapy.

Leprosy (Hansen's Disease)

- **About:** A chronic, progressive **bacterial infection**.
- **Cause:** It is caused by a bacterium called **Mycobacterium Leprae**, which is an acid-fast rod-shaped bacillus.
- **Infected organs:** Skin, Peripheral nerves, Upper **respiratory** tract and Lining of the nose.
- **Transmission:** Mainly by **breathing airborne droplets** from the affected individuals. It can be contacted at any age.
- **Symptoms:** Red patches on the skin, skin lesion, numbness in arms, hands, and legs, ulcers on the soles of feet, muscle Weakness and excessive weight loss.
- **Treatment:** Leprosy is **curable** with the combination of drugs known as **Multi-Drug Therapy (MDT)**.
 - If not treated on time, Leprosy **can lead to significant disability**, disfigurement, permanent nerve damage in arms and legs and even loss of sensation in the body.

CLIMATE CHANGE

The warming Arctic Ocean is bringing more snowfall to Siberia, shows study

Parts of northern Eurasia have been witnessing increased snow cover over the past decades



NEXT NEWS >

By Rohini Krishnamurthy
Published: Friday 25 November 2022



Impact on India

- Scientists have pondered over the impact the changing Arctic can have on the **monsoons in the subcontinent**.
- The link between the two is growing in importance due to the extreme weather events the country faces, and the **heavy reliance on rainfall for water and food security**.
- The reduced sea ice in the **Barents-Kara sea region** can lead to extreme rainfall events in the latter half of the monsoons.
- The **changes in the atmospheric circulation** due to diminishing sea ice combined with the warm temperatures in the Arabian Sea contribute to enhanced moisture and drive extreme rainfall events.
- **Sea level along the Indian coast is rising faster** than the global average rate.
 - One of the primary reasons for this rise is the **melting of sea ice in the polar regions**, especially the Arctic.

Context: Global warming has increased the evaporation and retreat of sea ice in the Arctic Ocean.

Key Points

- The **climate change-induced impacts** in the Arctic Ocean could be responsible for an increase in snow cover in Siberia.
- **Enhanced evaporation** deposits more moisture in the Arctic atmosphere, which makes its journey towards Siberia.
- The Arctic has warmed nearly **four times faster** than the rest of the world over the past 43 years.
- The impacts are being felt in mid-latitudes, where it could make **extreme weather events** more likely.

Arctic amplification

- **About:** In recent decades, the **warming in the Arctic has been much faster** than in the rest of the world, a phenomenon known as Arctic amplification.
- **Polar amplification:** It happens when **changes to the earth's atmosphere** led to a larger difference in temperature near the north and south poles than to the rest of the world.
 - This phenomenon is measured against the **average temperature change of the planet**.
 - These changes are more pronounced at the northern latitudes and are known as the **Arctic amplification**.
 - It occurs when the **atmosphere's net radiation balance** is affected by an increase in greenhouse gases.
- **Causes:** The **ice-albedo feedback, lapse rate feedback, water vapour feedback** (Change in Water Vapour amplify or weaken temperature range) and ocean heat transport are the primary causes.
 - Sea ice and snow have **high albedo** (measure of reflectivity of the surface), implying that they are capable of reflecting most of the solar radiation as opposed to water and land.
 - As the sea ice melts, the Arctic Ocean will be more capable of **absorbing solar radiation**, thereby driving the amplification.
 - The **lapse rate** or the rate at which the temperature drops with elevation decreases with warming.
 - Studies show that the **ice-albedo feedback** and the **lapse rate feedback** are responsible for 40% and 15% of polar amplification respectively.

THANK YOU!



t.me/theiashub



[/mkyadav](https://www.youtube.com/channel/UCmkyadav)



www.theiashub.com/daily-quiz



9560082909