

National and International Weekly Current Affairs 15 to 20 April 2024

National News

Right to sleep

- The Bombay High Court rejected a plea from a 64-year-old businessman regarding his arrest by the Enforcement Directorate (ED), criticizing the ED for making him wait overnight and recording his statement, thereby **depriving him of the 'right to sleep' under Article 21 of the Constitution.**

Key points:

- The court emphasized that the **'right to sleep' is a fundamental human need and depriving someone of it violates their human rights, affecting their health and cognitive skills.**
- It directed the agency to issue guidelines on the timings for recording statements under Section 50 of the **Prevention of Money Laundering Act (PMLA).**

Green Credit Programme (GCP)

- The **Green Credit Programme (GCP) encourages organisations and individuals to invest in afforestation projects in 'degraded' forest lands for 'green credits'.**
- The **Union Environment Ministry, the coordinator of the programme, emphasizes restoring ecosystems over merely tree planting.**

Key points:

- **Individuals and companies can apply to the Indian Council of Forestry Research and Education (ICFRE) to pay to "restore" 'degraded' forest lands.**
- **Two years after planting and following an evaluation by the ICFRE, each planted tree could be worth one 'green credit.'**
- **These credits can be used to**
 - Comply with existing forest laws or for reporting under environmental, social and governance leadership norms or to meet **corporate social responsibility requirements.**
- **As of now, these credits are not tradeable.** However, the **GCP aims to incentivise environmental positive actions through a market-based mechanism** and generate green credit, which **shall be tradable and**

made available for trading on a domestic market platform.

- The Environment Ministry has issued guidelines that **States must rely on to calculate what it would cost to restore a degraded forest landscape.**
- The **Ministry has changed the earlier requirement of a minimum of 1,100 trees per hectare to qualify as reforested landscape** and left it to States to specify them.
- **Preference** would be given to **indigenous species** and naturally growing seedlings would be retained.
- **Public sector companies** such as Indian Oil, Power Grid Corporation, National Thermal Power Corporation, Oil India, Coal India, and National Hydropower Corporation **had registered to invest in the programme.**

Think:

- Know about Indian Council of Forestry Research and Education (ICFRE).
- Know about **Carbon Credit Trading Scheme (CCTS).**

Heat Action Plans (HAPs)

- The **India Meteorological Department (IMD)** has predicted an **increase in the maximum temperature** and the **frequency of heatwave conditions** in the upcoming days, particularly over **eastern and southern India.**
- In response, governments at various levels — including State, district, and city — have prepared **Heat Action Plans (HAPs).**

About Heat Action Plans (HAPs):

- The **National Disaster Management Authority (NDMA)** and **India Meteorological Department (IMD)** are collaborating with **23 states** to develop **HAPs.**
- HAPs serve as a comprehensive **early warning system** and **preparedness plan for extreme heat events.**
- The plan includes both immediate and long-term actions to:
 - Increase preparedness
 - Enhance information-sharing
 - Improve response coordination
- The **primary goal of HAPs** is to **reduce the health impacts of extreme heat** on vulnerable populations.

- On a regional level, the **Ahmedabad Municipal Corporation (AMC)** prepared the **first Heat Action Plan in 2013**, in response to the devastating heatwave-related deaths in 2010.

What is Heatwave?

- A heat wave, sometimes described as **extreme heat**, is a period of **abnormally hot weather**.
- It is usually measured **relative to the usual climate in the area** and to normal temperatures for the season.
- High humidity** often accompanies heat waves, especially in oceanic climate countries.
- In **India**, the **India Meteorological Department (IMD)** has specific **criteria for declaring a heat wave**.
- It is considered if the **maximum temperature** of a station reaches at least **40°C or more for Plains**, and at least **30°C or more for Hilly regions**. If the above criteria are met at least in **2 stations in a Meteorological sub-division** for at least **two consecutive days**, it is declared a heatwave on the second day.

Vote-from-home exercise

- A **special polling team** trekked **18 kilometres inside the deep forest** under the **Idukki Lok Sabha constituency** to record a **single home vote**.
- The trek was part of the **'vote-from-home' exercise** meant for **senior citizens** aged above 85 and **differently abled voters**.
- The team trekked to the **Nooradi tribal settlement** under the **Munnar forest division**.

About Vote-from-home exercise:

- The "Vote-from-home" option is designed to **make voting more accessible to certain segments** of the electorate who may find it **difficult to visit polling stations** due to health or mobility issues.
- Targeted Voters:** Primarily aimed at **elderly voters** above the age of 80 and **persons with disabilities (PwD)**.
- Voluntary Participation:** Eligible voters can choose to opt for this method voluntarily; it is not mandatory.
- Application Process:** Voters must apply in advance to avail themselves of this facility. They need to fill out a form (**Form 12D**) and submit it to the returning officer.

National Curriculum for Early Childhood Care and Education 2024 - Aadharshila

- The Central government has released a curriculum for children aged **three to six-years-old**, aiming to **boost pre-school learning** in 14 lakh **anganwadis** across India.
- The **Ministry of Women and Child Development (MWCD)** has released the **'Aadharshila,' the National Curriculum for Early Childhood Care and Education 2024**.

About Aadharshila:

- Aadharshila is a detailed **48-week curriculum for three to six-year-olds in anganwadis**.
- The curriculum aims to **strengthen foundational literacy and numeracy concepts**.
- The curriculum includes a **weekly play calendar** with activities such as **storytelling, singing rhymes, art and craft, and more**.
- The curriculum **targets at least 48 weeks of learning in the duration of three years**.
- The curriculum helps in developing listening skill, vocabulary building, boosting imagination, narration, following instructions, creativity, social development, developing self-expression and self-esteem.
- The **national framework will serve as a base for States to develop their own culturally appropriate curriculums**.
- Training of anganwadi workers** towards providing early childhood education started under the **'Poshan Bhi, Padhai Bhi'** scheme by the MWCD.

Maharashtra State News

Ambedkar Jayanti

- Ambedkar Jayanti** is observed every year on **April 14th**.
- It commemorates the birthday of **Dr. B.R. Ambedkar**, a revered Indian politician and social reformer.
- Also known as **Bhim Jayanti** or **Equality Day**, it honors his significant contributions to **Indian society**.

About:

- Dr. Ambedkar is **best known as the "Father of the Indian Constitution"** for his chairmanship of the drafting committee.

- A champion for equality, he fought against the caste system and advocated for the upliftment of disadvantaged communities.
- Ambedkar Jayanti is a **national holiday in India**.
- People **pay homage at his statues and memorials, organize educational events and seminars**, and reaffirm their commitment to social justice and equality.
- This day has the underlying theme of '**social justice and equality**'.

Maharashtra tops India in 85+ voters

- According to data available till April 8, **Maharashtra has the highest number of registered voters in the age-group of 85 years and above (13 lakh)**
- **Uttar Pradesh comes next with 10.4 lakh, Bihar with 6.6 lakh and Tamil Nadu has 6.1 lakh voters** in the 85+ category.
- The **total voters in this category in India are 81 lakh**.
- **Maharashtra's share is as high as 16%**.
- **The lowest registrations are in the Union Territories**.

Water Reserves in Mumbai's Seven Lakes Hit 3-Year Low at 25.34%

- **Mumbai's seven lakes, the city's main water source, are at a critical low, holding only 25.34% of their capacity**.
- This is the **lowest level in three years** and raises concerns about the **adequacy of the water supply**.

About:

- Mumbai heavily depends on monsoon precipitation for its yearly water provision, drawing from **seven lakes: Tansa, Bhatsa, Modak Sagar, Tulsi, Vihar, Upper Vaitarna, and Middle Vaitarna**.

World Art Day

- **World Art Day is celebrated annually on April 15th**.
- It is an **international celebration of the fine arts** which was **declared by the International Association of Art** in order to **promote awareness of creative activity worldwide**.

About:

- The idea of celebrating **World Art Day** was **proposed by the International Association**

of Art (IAA) in 2011 at the **17th General Assembly held in Guadalajara, Mexico**.

- **The first World Art Day was celebrated on April 15, 2012**.

Theme:

- The theme for World Art Day 2024 is **"A Garden of Expression: Cultivating Community through Art."**
- The theme encapsulates the essence of art as a vibrant and nurturing force that fosters connection, creativity, and collaboration within communities worldwide.

National Fire Service Day

- **India observes National Fire Service Day on April 14th each year**.
- It commemorates the bravery of firefighters who lost their lives in the line of duty, particularly those who died in a massive ship explosion at the **Mumbai docks in 1944**.

Key Points:

- **Raising Awareness:** Fire safety campaigns and drills are organized to educate the public on fire prevention and preparedness.
- **2024 Theme:** The theme for 2024 was **"Ensure Fire Safety, Contribute Towards Nation Building."**
- This emphasized the importance of fire safety for national progress

Child rights panel calls for reform to better enforce RTE

- The **Maharashtra State Commission for Protection of Child Rights (MSCPCR)** said that the **policy of private education institutions getting concessions by opting for minority status needs to be reformed at government level**.
- It was in view that many schools in Mumbai city and suburbs were **denying admission to children citing minority status**.
- They proposed to **fix a minimum percentage for minority students while granting licenses to such schools**
- Aim is to keep Central rules in place for minority edu institutions to ensure "no child is deprived of education".

Voting from home made easy for seniors aged 85+

- Every registered voter aged above 85 years in Mumbai will be given a choice to either visit the polling stations or would like election officials to visit them at home to secure their vote.

About:

- A special document, called Form 12D, is being given to them.
- It is in that form that they are supposed to communicate their choice: booth or home.
- The forms will be collected by April 26
- Those who choose home voting will be visited by poll officials between May 9 and May 19 so that they can exercise their franchise.

Note:

- Mumbai's city district has 55,766 people in the age group and suburban 98,124.

20 EV charging stations to come up in Nashik by July

- Nashik is set to see a significant improvement in its electric vehicle (EV) charging network.
- A contract has been awarded to Servotech Power Systems to install 20 EV charging stations across the Nashik Municipal Corporation area.
- This initiative aims to address the growing demand for EVs by providing convenient and accessible charging facilities.

About:

- These stations are expected to be operational by July 2024 and will cater to both four-wheeler and two/three-wheeler EVs.
- This expansion will significantly bolster Nashik's EV infrastructure and support the city's transition towards sustainable transportation.

World Voice Day

- World Voice Day is commemorated every year on April 16th.
- It is dedicated to raising awareness about the importance of our voices.
- World Voice Day promotes voice care for everyone, from singers and teachers to business professionals and everyday individuals.

- By taking steps to protect our voices, we can ensure clear and effective communication throughout our lives.

Theme:

- The theme for World Voice Day 2024 is "Resonate, Educate, Celebrate."
- This theme was chosen by the American Academy of Otolaryngology-Head and Neck Surgery
- It emphasizes the importance of vocal health in our lives.

Did you Know?

- World Voice Day originated in Brazil in 1999 and has now become a global event.

CM Eknath Shinde announces Rs 3,500 crore project to prevent flooding in Kolhapur

- MH CM has declared that the state government has approved an allocation of Rs 3,500 crore for the comprehensive development of Kolhapur, which has been grappling with persistent flooding.

About:

- This allocation aims to address the longstanding flooding issue in Kolhapur, ensuring its permanent resolution.

State to get 1st welfare centre for veterans of Assam Rifles

- Maharashtra is set to inaugurate its first Assam Rifles Ex-Servicemen Association (ARESA) Centre on April 21st, 2024.
- This initiative aims to provide much-needed welfare facilities and support services to veterans of the Assam Rifles residing in the state.
- The establishment of this centre coincides with the first-ever Assam Rifles Veterans Day celebrated on March 23rd, 2024.
- This marks a significant step forward in recognizing the contributions of Assam Rifles veterans in Maharashtra, which has over 107 ex-servicemen.
- The inauguration ceremony will be followed by an Ex-Servicemen Rally, fostering a sense of community and celebrating the veterans' service.

World Haemophilia Day

- **World Hemophilia Day is observed annually on April 17th.**
- **It raises awareness about hemophilia and other bleeding disorders.**

Key Points:

- **Increase understanding:** Educate the public about hemophilia, a genetic condition affecting blood clotting.
- **Improve diagnosis and care:** Advocate for better access to diagnosis and treatment for all, regardless of location or resources.
- **Support the community:** Celebrate the strength and resilience of those living with bleeding disorders.

About:

- World Haemophilia Day was **started by the World Federation of Haemophilia in 1989**
- **April 17** was decided as the **date to observe the health day every year to honour the founder of the organization Frank Schnabel**, who played a significant role in advocating for hemophilia awareness and treatment and dedicated his life towards improving lives of those suffering from the disorder

Theme:

- The theme for this year's World Haemophilia Day is, **'Equitable access for all: recognising all bleeding disorders.'**
- The main idea of this theme is to make sure everyone gets treated, no matter what type of bleeding problem they have, how old they are, where they live or their gender.

Maharashtra second in forest land allotment to tribals

- **Maharashtra** has emerged as the **second highest after Chhattisgarh** in **distributing forest land** under the **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.**

Key points:

- A status report by the **Ministry of Tribal Affairs** reveals that **Maharashtra distributed more than 58.70 lakh acres of forest land** under **individual forest rights (IFRs)** and **community forest rights (CFRs)** till February 29, 2024.

- **Chhattisgarh topped the chart** by distributing 61 lakh acres towards IFRs and CFRs.
- Other states that settled maximum IFRs and CFRs and distributed forest land include **Telangana, Odisha, Madhya Pradesh, and Gujarat.**

Right To Sleep

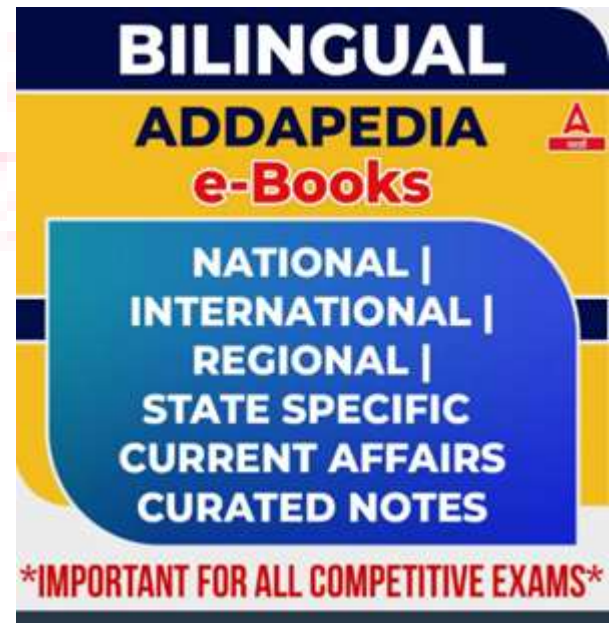
- The **Bombay High Court** ruled that the **right to sleep is a basic human requirement.**
- The court stated that not providing it violates a person's human rights.

Context of the Ruling:

- The statement was made in response to a case where the **Enforcement Directorate (ED) questioned a senior citizen throughout the night.**
- The court directed the ED to **maintain "earthly timings" for recording statements.**
- This direction is especially relevant when **summons under the Prevention of Money Laundering Act (PMLA)** are issued by the agency.

Think:

- Know about rights under **Article 21.**
- Know about **Enforcement Directorate (ED).**



World Banana Day

- **World Banana Day is celebrated on the third Wednesday of April, which falls on today, April 17th, 2024**

- Bananas are a **source of potassium and other essential nutrients**, and can be enjoyed in countless ways.

About:

- **Jalgaon banana (GI tag No. 498-2016)** has been given the **GI tag**
- Its **origin is Tandalwadi village of Jalgaon district, Maharashtra.**
- Its **Unique Fibre and mineral rich Jalgaon banana'** which is being exported to Dubai.
- **Quality is mainly due to its proximity to the Tapi River.**

Issue of debris in Aarey

- The **Brihanmumbai Municipal Corporation (BMC)** and **Aarey Milk Colony** have been passing the responsibility for **clearing the debris dumped in Aarey** along the banks of the **Mithi River** onto each other for months.
- The **National Green Tribunal (NGT)** has ordered the constitution of a **committee to decide who will shoulder the burden.**

Key points:

- **The committee will decide:**
 - Where the debris dumped from the Jogeshwari Vikhroli Link Road near the Tapeshwar Mandir is to be shifted.
 - Who will bear the expenses.
 - How the shifting will be carried out.
- **The committee will be headed by the chief secretary of Maharashtra** and include the **BMC, Maharashtra Pollution Control Board, Urban Development Department, Aarey Milk Colony, the Environment Department, a scientist from NEERI, and Anil Dikshit, a professor from IIT Bombay.**

Did you know?

- **Aarey Forest**, often referred to as the '**Lungs of Mumbai**', is a significant green space in Mumbai.

About Aarey Forest:

- **Location:** Aarey Forest is **located near Sanjay Gandhi National Park** and is situated in **Goregaon (East).**
- **Size:** It spreads over approximately **2000 acres.**
- **Establishment:** The area was **established in 1949** to revolutionize the processing and marketing of dairy products in the city.
- **Flora and Fauna:** It also houses about 290 species of wildlife, including **five species listed by the International Union for**

Conservation of Nature (IUCN). These include **leopards, Rusty spotted cat, Sambar deer, Alexandrine Parakeet, and Red-wattled Lapwing.**

- **Conservation:** On 3 September 2020, the Maharashtra government declared **one fifth of the Aarey Colony, an area of approximately 600 acres, as a reserved forest.**

Think:

- Know about the **PYQ of Aarey Milk Colony.**

Central Railway to install speed-sensing devices in Western Ghats

- **Central Railway (CR)** plans to install **speed-sensing devices** in the **Mumbai-Pune/Nashik rail corridors** to make train travel safer in the **Western Ghats** during the monsoon.
- The **device will monitor and control train speeds** when they operate in the ghats.

Key points:

- The **devices will be installed** in the **Karjat-Lonavala and Kasara-Igatpuri sections** before the monsoon.
- The **Bhor and Thal ghats** have a steep gradient of 1:37, meaning a train climbs one metre at a distance of every 37 metres.
- The device will indicate when a train crosses the permissible speed in the ghats and can bring it under control.
- **At present, trains must halt at specific locations on the Karjat-Khopoli-Lonavala and Kasara-Igatpuri sections as a safety measure.** This system will be done away with once the speed-sensing devices are in place.
- The device is being tested at **Monkey Hill Cabin station** on the Karjat-Lonavala belt and is awaiting final approvals.

Think:

- Know about the **Bhor and Thal ghats.**

Lata Dinanath Mangeshkar award

- **Amitabh Bachchan**, was conferred with the **third Lata Dinanath Mangeshkar award** for his exemplary contribution to the country, people, and society.

Key points:

- The **Deenanath Mangeshkar Smriti Pratishthan** instituted the **Lata Dinanath**

Mangeshkar award after the death of Bharat Ratna awardee and legendary singer Lata Mangeshkar on February 6, 2022.

- **Past recipients** of the award include **Prime Minister Narendra Modi** and singer **Asha Bhosale**.
- **The Pratishthan decided to confer the Master Deenanath Mangeshkar award** for
 - **AR Rahman** for Music direction,
 - Marathi actor **Ashok Saraf** for music;
 - **Padmini Kolhapure** for films,
 - Singer **Roopkumar Rathod** for Indian music,
 - Actor **Atul Parchure** for Marathi theatre;
 - Retired teacher and author **Manjiri Phadke** for literature.
 - Actor, producer, and director **Randeep Hooda** was conferred with a special award for his cinematic contribution.
- The **Marathi play 'Galib'** will be given the **Mohan Wagh award** for best drama.
- **Deepstambh Foundation's Manobal project**, a residential training institute for persons with disabilities, orphans, and economically weak students, will be recognized for social service.

Maharashtra topped sugar production in country

- As per **Indian Sugar & Bio-energy Manufacturers Association (ISMA)** latest data, **sugar production in Maharashtra**, the country's leading producing state of sweetener, **remained higher at 109.2 million tonnes**.

Key points:

- **India's sugar production reached nearly 311 lakh tonnes (lt)** up to April 15.
- Sugar production in **Maharashtra was up at 109.2 lt**, and in **Uttar Pradesh it was higher at 101.45 lt**.
- **Production in Karnataka was down at 50.60 lt**, in Gujarat it was down at 9.19 lt, and in **Tamil Nadu it was at 8.60 lt**.
- Other states including Bihar, Haryana, and Punjab have together produced 31.89 lt.
- The total sugar output across the country has reached 310.93 lt until April 15, **excluding the quantity diverted towards production of ethanol**.

Violation of the Model Code of Conduct (MCC) of DY CM

- The **Election Commission (EC)** has ordered a **probe** into a remark made by **Maharashtra's Deputy Chief Minister, Ajit Pawar**.
- Ajit Pawar allegedly stated that he would stop funds to those who didn't vote for his wife, Sunetra Pawar, who is his party's candidate from Baramati.
- **The Model Code of Conduct (MCC) does not permit the offering of financial inducements to voters.**

About the Model Code of Conduct (MCC):

- The Model Code of Conduct is a **set of guidelines issued by the Election Commission of India to govern the behavior of political parties and candidates** in the run-up to elections.
- **Purpose:** To ensure that electoral contests are conducted fairly and to maintain the integrity of the democratic process.
- **Timing:** It comes into effect immediately after the election schedule is announced and remains in force until the conclusion of the elections.
- **Scope:** Applies to political parties, candidates, and all government bodies.
- **Role of Election Commission:** The **Election Commission (EC) monitors and enforces compliance with the MCC**. The EC can reprimand parties or candidates violating the MCC and take measures like withdrawing security detail or lodging complaints.
- **Complaints and Redressal:** Mechanisms are in place for individuals or parties to file complaints about MCC violations, which are then investigated by the EC.

Did you know?

- **cVIGIL** is a mobile application developed by the **Election Commission of India** to enable citizens to report violations of the **Model Code of Conduct (MCC)** during elections.

Asiatic wild dogs or Dhole

- **Two Asiatic wild dogs** were rescued from a 25-foot deep well in Malvan taluka, **Sindhudurg district**.
- The rescue operation was conducted by members of the forest department and lasted for about an hour.

- The Asiatic wild dog, **also known as Dhole in Marathi, is prohibited from hunting and falls under the endangered category.**

About Dhole:

- Dhole (**Canis lupus pallasius**) is a wild carnivorous animal, a member of the **family Canidae** and the **class Mammalia**.
- In India, they are **found in the Western and Eastern Ghats, central Indian landscape, and North East India.**
- Dholes play an important role as **apex predators in forest ecosystems.**
- **Conservation Status:**
 - IUCN List of Threatened Species: **Endangered**
 - Convention on International Trade in Endangered Species of Wild Fauna and Flora (**CITES**): **Appendix II**
 - **Wildlife Protection Act, 1972: Schedule II**
- They may also be found in **small numbers** in the area of **Ladakh.**
- **Threats to the Population of Dholes:**
 - Habitat Loss
 - Decreasing population of ungulates, their main prey, due to excessive hunting and habitat loss
 - Persecution due to livestock predation and disease transfer from domestic and feral dogs
- **World Dhole Day** is celebrated annually on **May 28.**
- The **first World Dhole Conference** happened in February **2019.**
- The **Dhole conservation breeding centre** was sanctioned by the Government of India in 2014, in the **Indira Gandhi Zoological Park in Vishakhapatnam.**

Tadoba National Park and Navegaon-Nagzira Tiger Reserve

- The **tigress, known as NT3, was translocated from Tadoba National Park to Navegaon-Nagzira Tiger Reserve (NNTR) in Maharashtra.**
- The tigress removed her GPS collar, which led to a massive search operation.

About Tadoba National Park:

- Tadoba National Park, officially known as **Tadoba Andhari Tiger Reserve, is one of India's oldest and most renowned national parks.**

- Located in the **Chandrapur district** of Maharashtra.
- Established in **1955**, Tadoba National Park is **named after the local tribal god worshipped by the tribal people, 'Tadoba' or 'Taru', and the river that flows through the area, the Andhari River.**
- It is renowned for its large population of Bengal tigers. Other key wildlife includes leopards, sloth bears, gaur (Indian bison), dhole (Indian wild dog), striped hyenas, jungle cats, sambar, and spotted deer.

About Navegaon-Nagzira Tiger Reserve:

- Navegaon-Nagzira Tiger Reserve is a significant protected area in **Maharashtra.**
- Located in the eastern part of the state in the **Gondia and Bhandara districts.**
- It was officially declared a tiger reserve in **2013.**
- It spans an area of about 656.64 square kilometers, combining the Navegaon National Park, Nagzira Wildlife Sanctuary, and several other forest areas into a single ecological unit.

Maharashtra State Commission for Protection of Child Rights (MSCPCR)

- The **Maharashtra State Commission for Protection of Child Rights (MSCPCR) urging policy reforms for minority educational institutions.**
- The MSCPCR emphasized the need for reform in the policy allowing private educational institutions to gain concessions through minority status.

About Maharashtra State Commission for Protection of Child Rights (MSCPCR):

- The Maharashtra State Commission for Protection of Child Rights (MSCPCR) **established to ensure that all laws, policies, and programs are in alignment with the child protection rights as enshrined in the Indian Constitution and the United Nations Convention on the Rights of the Child.**
- The Maharashtra State Commission for Protection of Child Rights was established in response to the **Commissions for Protection of Child Rights Act, 2005, which mandates the setting up of such commissions in every state in India.**
- **Purpose:** Its primary purpose is **to monitor the implementation of laws and policies**

related to children and ensure that state and private actions comply with these laws.

- While the **commission does not have the same powers as a civil court**, it is entitled to **summon and enforce the attendance of any person and examine them under oath**, demand the discovery of documents, receive evidence, and issue commissions for the examination of witnesses or documents.

Smart voter slips

- **Jalgaon district** in Maharashtra has introduced **smart voter slips**, becoming the first in the state to do so.
- **Barcodes have been installed** at 250 public spots across the region, **allowing residents to access voter details by scanning with their smartphones**.

Key points:

- The digital voter slip **serves as a confirmation of the voter's registration** and provides essential information about where and when to cast their vote.
- It will **help individuals have access to their serial numbers** in the voters' list and the location of the polling station.
- **Voters can check** their details using their registered names, phone number linked with an Aadhaar card, or their voter ID card number.
- The digital voter slips and online access to details aim to keep voters more informed and vigilant.

World Heritage Day on Thursday at Panhala Fort

- The **Archaeological Survey of India (ASI), Mumbai Circle** celebrated **World Heritage Day at Panhala Fort**, located 20 kilometres north-west of **Kolhapur** and around 9 hours away from Mumbai.
- The **theme** for this year was **'Discover and experience diversity'**.
- A photo exhibition titled **'Maratha Military Landscapes'** was organised to **showcase the history and heritage of the fort**.

Key points:

- **Panhala Fort** was declared a monument of national importance on January 2, 1954.
- Panhala Fort is one of the most **significant forts of Deccan**, perched atop a roughly

triangular hill. It has a rich history, with the transfer of power in the hands of the **Yadavas of Devgiri**, the **Bahamani of Bidar**, the **Adilshahi of Bijapur**, the **Marathas** and the **Mughals**.

- The fort has several **water bodies and structures**, including a three-storied tower called the **Nayikinicha Sajja** or the dancing girl's tower, and the **Ambarkhana** which consists of **3 buildings** known as the **Ganga, Yamuna and Saraswati**.

Mumbai records the maximum temperature in last 10 years

- **Mumbai** experienced its **first heat wave of 2024** on April 16.
- **Santacruz Observatory** recorded a **maximum temperature of 39.7 degrees**, which is 6.3 degrees above normal.

Key points:

- The **Indian Meteorological Department (IMD)** issued a heatwave warning for **Mumbai, Raigad, and Thane** for April 16 and 17.
- **The maximum temperature of 39.7 recorded by Santacruz is the highest in the last 10 years (2014 to 2023)**.
- This heatwave warning is issued for April 17 also. The winds in lower levels are predominantly easterly with an **anticyclonic circulation** in mid-levels.

About anticyclonic circulation:

- Anticyclonic circulation refers to the **rotation of air around a high-pressure system, opposite to the direction of the Earth's rotation**.
- This is **clockwise in the Northern Hemisphere** and **counterclockwise in the Southern Hemisphere**.
- In an anticyclone, **air descends from higher in the atmosphere to the surface**, typically bringing clearer skies and calmer weather. As the air descends, it warms, which inhibits **cloud formation and leads to mostly clear skies**. This type of weather pattern can lead to **very stable weather conditions**, including dry and warm weather depending on the season and the region affected.

Sae Vitthal Patil won bronze at EGMO 2024

- A **four-member girls team** represented India at the **13th European Girls' Mathematical**

Olympiad (EGMO) 2024 and won two silver and two bronze medals.

- The team was trained at **Chennai Mathematical Institute (CMI).**

Key points:

- This is the **second time all four contestants of the Indian team secured medals at EGMO** since India's debut in 2015.
- The students are **Gunjan Aggarwal (17) from Gurugram, Sanjana Philo Chacko (15) from Thiruvananthapuram, Larissa (16) from Hisar, and Sae Vitthal Patil (17) from Pune.**
- **Gunjan and Sanjana won silver medals, while Larissa and Sae won bronze at EGMO 2024.**
- The objective of EGMO is to **inspire girls to participate in national and international STEM Olympiads.**
- Olympiads such as EGMO help shape the students' interest in the STEM fields and foster cultural exchange among teenagers worldwide. They do not lead directly to any career benefits.

Maharashtra Real Estate Regulatory Authority (MahaRERA)

- Maharashtra's realty regulator receives pleas to de-register 279 housing projects.
- In February 2023, the **Maharashtra Real Estate Regulatory Authority (MahaRERA)** permitted the de-registration of housing projects.

About Maharashtra Real Estate Regulatory Authority (MahaRERA):

- The MahaRERA is a **statutory body established under the Real Estate (Regulation and Development) Act, 2016** by the Government of Maharashtra.
- It came into effect on May 1, 2017, with the **primary goal of regulating and promoting the real estate sector in Maharashtra, including the union territories of Daman & Diu and Dadra & Nagar Haveli.**

None of the Above (NOTA)

- The **Aurangabad Bench of the Bombay High Court dismissed a Public Interest Litigation (PIL) petition on NOTA.**
- The PIL sought directions to the Election Commission (EC) to create awareness

about the 'None of the Above' (NOTA) option in Electronic Voting Machines (EVMs).

Key points:

- The Bench stated that the EC and the Maharashtra State Election Commission had already taken sufficient steps to create awareness about the NOTA option.
- The court noted that **'NOTA' is conspicuously mentioned in bold letters on the EVM, and is available as the last option.**
- The EC has published a manual on **Systematic Voters Education and Electoral Participation (SVEEP)** in July 2020 and the SVEEP Strategy 2022-2025.

About None of the Above (NOTA):

- "None of the Above" (NOTA), **officially recognized in India, is an option on electronic voting machines and ballots, allowing voters to register a vote of rejection for all candidates running in an election.**
- It was **introduced to empower the electorate** by providing them the ability to **express their disapproval of the available candidates.**
- **NOTA was introduced by the Election Commission of India following a 2013 Supreme Court ruling that mandated its inclusion to uphold the right of voters to express their disapproval with the candidates presented.**

Think:

- Know about **Systematic Voters Education and Electoral Participation (SVEEP).**

State News

'Forever chemicals' in Chennai water bodies

- The **Southern Bench of the National Green Tribunal (NGT)** has expressed concerns about the **presence of 'forever chemicals' in Chennai waterbodies.**
- The bench took **suo motu cognisance of chemical contamination in Buckingham Canal, Adyar River, and Chembarambakkam Lake** based on news reports on a study done by **Indian Institute of Technology Madras.**

Key points:

- The study noted the presence of **polyfluoroalkyl substances (PFAS),**

synthetic chemicals that do not degrade in the environment, in surface level waters, groundwater, and even treated water treatment plant near the lake.

- PFAS are known to have **adverse health effects** such as liver damage, hormonal imbalance, immune system effects, and even cancer.

About forever chemical:

- "Forever chemicals" is a colloquial term commonly used to refer to **per- and polyfluoroalkyl substances (PFAS)**.
- These are a **group of man-made chemicals** that are notable for their **persistence in the environment and in human and animal bodies**, where they can accumulate over time.
- **Persistence:** PFAS are extremely durable and **resistant to typical environmental degradation processes**, which is why they are called "**forever chemicals**."
- **Widespread Use:** These chemicals have been used in various industries since the 1940s for their water- and grease-resistant properties.

International News

Iran-Israel ties

- In a recent development, **Iran reportedly carried out attacks on Israel on April 12** in response to Israeli airstrikes on an Iranian consulate in Syria, which resulted in the death of senior Iranian military commanders.
- **The incident has amplified concerns over a potential wider conflict in the Middle East between the two nations.**

Background:

- Iran-Israel relations were once **cordial before the 1979 Islamic Revolution**.
- As one of the first Muslim-majority countries to recognize **Israel's formation in 1948**, Iran shared common interests with Israel, such as opposing Arab hostility.
- However, **following the revolution, Iran's regime adopted an anti-Israel stance, viewing the country as an occupier of Palestinian land.**
- Consequently, Iran-Israel relations soured, with both countries engaging in proxy conflicts and strategic attacks.

Issues:

- Given **Iran's lack of recognition of Israel's legitimacy** and the overt hostility between the **two nations since the early 1990s**, they have engaged in shadow wars and proxy conflicts, particularly in Syria and Yemen.
- Both countries have **ties to organizations involved in ethnic and religion-based conflicts in the region.**
- The nuclear programs of **both nations have further heightened tensions**, with Israel viewing Iran's nuclear program as a threat to its existence, and **Iran being subjected to various sanctions by the United States.**
- **Iran is believed to provide funding and support to several militant groups in the region that oppose Israel and the United States.** These include Hezbollah in Lebanon and Hamas in the Gaza Strip.
- As the rivalry between the **two nations persists, the involvement of the United States as Israel's strong ally** has exacerbated Iran's insecurity, increasing the **potential for unwanted Western interference in the region.**
- The recent incidents of **targeted attacks, assassinations, and cyberattacks between Iran and Israel underscore the delicate and unstable nature of the situation.**
- As tensions escalate, the international community remains concerned about the **potential for a wider regional conflict between the two adversaries.**

Impact on India:

- The intensifying conflict **between Israel and Iran has far-reaching implications for India**, which has deep equities in the region, including a large diaspora, robust economic partnerships, and a burgeoning strategic role.
- **A potential escalation could significantly impact India's people, economic interests, and strategic needs.**
- India's reliance on the **West Asia region for 80% of its oil supplies renders the country vulnerable to the ramifications of a potential conflict on energy prices.**
- Although India has mitigated the impact of oil prices in the **context of the Russia-Ukraine war by securing discounted Russian oil, the Iran-Israel conflict could have adverse effects.**

- India's strategic relationship with major Arab countries, including **Iran and Israel**, is a **vital factor in the country's foreign policy**.
- New Delhi has balanced its **strategic ties with both nations**, but the **widening conflict could force India to abandon its ambivalent position**.

India ties with Israel:

- India's strong **strategic relationship with Israel**, particularly in defense and security, has deepened over the past decade.
- Israel has emerged as a **key defense supplier for India**, joining the ranks of the **US, France, and Russia**. Moreover, both countries share concerns about **extremism and terrorism**.

India ties with Iran:

- Despite maintaining a strategic partnership with Israel, India has managed to **preserve its strategic relationship with Iran**.
- Tehran has been a significant supplier of crude oil to India, though this **relationship has faced obstacles due to sanctions**.
- Both nations also share apprehensions regarding **terrorism originating from Pakistan and Afghanistan**.
- Additionally, the **Chabahar project serves as an essential economic gateway to Afghanistan and Central Asia**.

Way forward:

- The path forward in this **tumultuous situation necessitates diplomatic efforts from global leaders to promote de-escalation and return to the path of diplomacy**.
- India's position advocating for an **immediate cessation of violence** is crucial in restoring peace to the volatile region.
- Pressures from world leaders, such as **US President Joe Biden's statement that the US would not partake in any Israeli counteroffensive against Iran**, may contribute to de-escalating the conflict and establishing peace.

World Craft City (WCC)

- The **World Crafts Council International (WCCI)**, based in **Kuwait**, is **considering Srinagar for the World Craft City (WCC) nomination from India this year**.
- The team has inspected several clusters where artisans were working on local crafts like

Pashmina shawls, carpets, papier mâché, etc.

Key points:

- The annual ceremony to grant WCC status **aims at promoting, preserving, and evolving handicrafts and building new market linkages**.
- The **Indian National Trust for Art and Cultural Heritage-Kashmir (INTACH-K)** is collaborating with the **J&K Handicrafts department** to map the craft sector ahead of the final nomination.

United Nations membership for the state of Palestine

- The **United States vetoed a U.N. resolution** that would have allowed full **United Nations membership for the state of Palestine**.
- The vote in the 15-member Security Council was **12 in favour**, the **United States opposed**, and **two abstentions**.

Key points:

- The **resolution** would have recommended the 193-member General Assembly **to approve Palestine becoming the 194th member of the United Nations**.
- **140 countries have already recognized the state of Palestine**, so its admission would have been approved.

Think:

- Know about the process for obtaining full membership of the United Nations.

Economy News

Credit-Deposit Ratio

- The **March 2024 report by CareEdge** highlighted that **banks' credit-deposit (CD) ratio has reached a decadal high, standing at around 80 percent**.
- This ratio reflects the percentage of deposits banks have raised that have been lent out, indicating liquidity and credit risks for banks.

About:

- The **currency deposit ratio**, on the other hand, reveals the **proportion of currency that individuals hold compared to aggregate deposits**.

- When the cash deposit ratio increases, the money multiplier decreases.
- Similarly, an increase in deposit rates encourages depositors to deposit more, **reducing the Cash to Aggregate Deposit ratio and increasing the Money Multiplier.**

Awards News

All We Imagine As Light

- Payal Kapadia's film, **All We Imagine As Light**, has become the first Indian title in over 40 years to feature in the prestigious In Competition section of the Cannes Film Festival.
- British-Indian filmmaker Sandhya Suri's Santosh will also be showcased at the 77th edition of the film gala under the Un Certain Regard section.

About Payal Kapadia:

- Payal Kapadia is an alumna of the Film & Television Institute of India (FTII) and is best known for her acclaimed documentary **A Night of Knowing Nothing**, which won the Oeil d'or (Golden Eye) award at the **2021 Cannes Film Festival's Director's Fortnight side-bar.**

Did you know?

- The last Indian film to compete for the coveted Palme d'Or award (It is the highest prize awarded at the Cannes Film Festival) was legendary filmmaker Mrinal Sen's Kharij in 1983.
- Neecha Nagar is the only Indian film ever to win the top honour at Cannes back in 1946.

Malcom Adiseshiah Award 2024 and Elizabeth Adiseshiah Citation-2024

- **Surinder S. Jodhka**, professor, School of Social Sciences, **Jawaharlal Nehru University**, has been chosen for the **Malcom Adiseshiah Award 2024.**
- **Vikas Kumar**, associate professor, School of Development, **Azim Premji University**, will receive the **Elizabeth Adiseshiah Citation-2024.**
- Every year, the awards are given to outstanding **social scientists.**

Key Points:

- It is awarded by the **Malcolm and Elizabeth Adiseshiah Trust.**

- **Malcom Adiseshiah award** carries a **citation** and a **cash prize of Rs.2 lakhs.**
- **Elizabeth Adiseshiah Award** will carry a **cash prize of Rs.1 lakh.**
- The **award is open to Indian and foreign scholars** ordinarily resident in India.

Did you know:

- **Malcolm Sathiyathan Adiseshiah** (18 April 1910 – 21 November 1994) was an **Indian development economist and educator.**

About Malcolm Sathiyathan Adiseshiah:

- He was born in Vellore, **Tamil Nadu.**
- He obtained a **doctorate in economics** at the London School of Economics.
- In **1976**, he was awarded the **Padma Bhushan**, India's third-highest civilian award.
- In **1998**, **UNESCO** created the **Malcolm Adiseshiah International Literacy Prize** in recognition of his **contribution to education and literacy.**
- He was **nominated to the Rajya Sabha**, the upper house of the Parliament of India, in **1978.**
- He served as the **Vice Chancellor of the University of Madras** from 1975 to 1978.
- He was the founder of the **Madras Institute of Development Studies (MIDS).**

Defense News

Igla-S

- India has recently taken delivery of a fresh **consignment of Igla-S air defense systems from Russia, intended for deployment along the Line of Actual Control (LAC).**
- This procurement fulfills an order placed last year to address the current needs of the Indian Army.

Key points:

- The initial batch comprises **24 Igla-S Man Portable Air Defense Systems (MANPADS) along with 100 missiles**, with plans for the remainder to be manufactured in India under a larger agreement.
- This acquisition **aims to bolster the Indian Army's Very Short Range Air Defense (VSHORAD) capabilities**, particularly in the challenging terrain of high mountainous regions bordering the north.

- The Igl-S system boasts an **enhanced interception range of up to 6 km, providing a significant upgrade over the older Igl-1M systems.**

About:

- The **Igl-S is a portable defense system**, operable by either an individual or a crew.
- It is specifically engineered to **intercept low-flying aircraft** and can also detect and eliminate airborne **threats like cruise missiles and drones.**
- As reported by The Defense Post, the Igl-S air defense system is composed of several components, including the 9M342 missile, the 9P522 launcher, the 9V866-2 mobile test station, and the 9F719-2 test set.
- These systems are primarily deployed in **new air defense units stationed in high mountainous regions along the northern border.**

Vice-Admiral Dinesh Kumar Tripathi

- Vice-Admiral **Dinesh Kumar Tripathi** has been appointed as the next **Chief of Naval Staff.**
- He is currently serving as the Vice-Chief of the Naval Staff (VCNS).
- He will **take over from** the current chief, **Admiral R. Hari Kumar**, on April 30, 2024.

Did you know:

- In India, the **chiefs of the armed forces**—namely the **Army, Navy, and Air Force**—are **appointed by the President of India.**
- The President acts on the **advice of the Government of India**, typically following a **recommendation from the Ministry of Defence.**
- The appointment is usually made from among the **senior-most officers of the respective forces**, taking into consideration their service records, experience, and suitability for the highest leadership roles within the armed forces.

BrahMos supersonic cruise missiles

Why in news?

- **India delivered the first batch of BrahMos supersonic cruise missiles to the Philippines.**
- The Philippines concluded a \$375-million deal with India in January 2022 for three batteries of the BrahMos, **becoming the first export customer.**

Key points:

- The **delivery comes amid the ongoing showdown** between the **Philippines and China** in the **South China Sea.**
- Several countries have expressed interest in acquiring BrahMos systems, and discussions are in advanced stages with **Indonesia and Thailand** among others.

About BrahMos supersonic cruise missiles:

- **Type:** Supersonic cruise missile.
- **Developed by:** Joint venture between India's **Defence Research and Development Organisation (DRDO)** and Russia's **NPO Mashinostroyeniya.**
- **Name Origin:** Named after the **Brahmaputra River** in India and the **Moskva River** in Russia.
- **Speed:** Mach 2.8 to 3.0 (supersonic speed).
- **Range:** Approximately **290-450 kilometers**, with extended range versions in development.
- **Warhead:** **Conventional and nuclear options**, with a payload capacity up to **300 kilograms.**
- **Launch Platforms:** Versatile launch capabilities from land, sea, sub-sea, and air platforms.
- **Guidance System:** Equipped with an inertial navigation system and a terminal active radar guidance system.
- **Stealth Technology:** Designed to reduce radar cross-section for stealthier approach.
- **BrahMos-II:** Development of a **hypersonic version** of the missile, BrahMos-II, which is **expected to travel at speeds of Mach 7+.**
- **Extended Range:** Ongoing efforts to extend the missile's range beyond 450 kilometers under international missile treaties.

Asia Development Outlook report

- Asia Development Outlook report is released by the Asian Development Bank.
- As per report, India's GDP growth is forecasted to slow from 7.6% in 2023-24 to 7% in 2024-25, before improving to 7.2% in 2025-26.

Did you know?

- India is a founding member of the Asian Development Bank and the bank's fourth largest shareholder.

About ADB:

- **Full name:** Asian Development Bank
- **Established Year:** 1966.
- **Headquarters:** Manila, Philippines.
- The Asian Development Bank was established as a regional development bank. In India, it was established under the "Asian Development Bank Act, 1966".
- **Composition:** The Asian Development Bank is operated by a Board of Governors, which is composed of one representative from each member state.
- **Aim of the Organization:** To promote economic development and poverty reduction in Asia and the Pacific.
- **Programs/Activities/Services Offered by the Organization:** The Asian Development Bank provides assistance to its developing member countries, the private sector, and public-private partnerships through grants, loans, technical assistance, and equity investments to promote development.
- The Asian Development Bank has 68 members, of which 49 are from the Asia and Pacific region.

India's Tree Cover Loss and Carbon Emissions Since 2000: Insights from Global Forest Watch

- India has lost **2.33 million hectares of tree cover since 2000**, which is equivalent to a **six percent decrease during this period**.
- This loss has resulted in an **average release of 51.0 million tons of carbon dioxide equivalent** into the atmosphere annually.

- The **Global Forest Watch (GFW) project**, which monitors forest changes using satellite data, reported that India lost **414,000 hectares of humid primary forest between 2002 and 2023**, accounting for **18 percent of its total tree cover loss** in that period.

Key points:

- From **2001 to 2022**, forests in India emitted **51 million tons of carbon dioxide equivalent per year but also removed 141 million tons per year**, resulting in a net carbon sink of 89.9 million tons per year.
- However, the loss of forests accelerates climate change, **as forests act as both a sink and a source for carbon**.
- Tree cover loss in India includes **both human-caused loss and natural disturbances**, such as logging, fire, disease, or storm damage, which may not always meet the definition of deforestation.
- **The data indicates that 95 percent of tree cover loss in India from 2013 to 2023 occurred within natural forests.**
- **Five states in India accounted for 60 percent of all tree cover loss between 2001 and 2023**, with **Assam, Mizoram, Arunachal Pradesh, Nagaland, and Manipur** experiencing significant losses.
- **Assam** had the highest tree cover loss at 324,000 hectares, compared to an **average of 66,600 hectares**, followed by **Mizoram, Arunachal Pradesh, Nagaland, and Manipur**.
- According to the **Food and Agriculture Organisation**, India's deforestation rate was 668,000 hectares per year between **2015 and 2020**, the **second-highest worldwide**.
- Additionally, from 2002 to 2022, **Odisha had the highest rate of tree cover loss due to fires**, followed by **Arunachal Pradesh, Nagaland, Assam, and Meghalaya**.

The GFW cautions against comparing old and new data, especially before and after 2015, due to changes in the data over time from algorithm adjustments and improved satellite data.

The project refers to tree cover **when discussing forest extent, loss, and gain**, as it is easily measurable using satellite imagery.

However, the existence of tree cover does not always indicate a forest, and tree cover loss or gain does not always imply forest loss or gain.

Sugar content high in Nestlé baby food sold in India

- A recent report by Swiss **NGO**, the **Public Eye and International Baby Food Action Network (IBFAN)**, revealed **higher sugar content** in **Nestlé's baby food products sold in India, African and Latin American countries** compared to those sold in European markets.
- Despite **World Health Organisation (WHO) recommendations against added sugar in foods for children under three years**, **Indian regulators allow a limited amount of sucrose and fructose** in baby food.

Key points:

- Nestle India ensures that their products manufactured in India are in full and strict compliance with **CODEX standards** (a commission established by **WHO** and the **Food and Agriculture Organisation**) and local specifications pertaining to the requirements of all nutrients including added sugars.
- The **Food Safety and Standards Authority of India**, which regulates the manufacture, storage, distribution, sale, and import of food articles, while also establishing standards to ensure food safety, said that it is looking into the IBFAN report.

About CODEX standards:

- The **Codex Alimentarius**, or “**Food Code**”, is a **collection of international food standards, guidelines, and codes of practice**.
- These standards are established by the **Codex Alimentarius Commission (CAC)**, a central part of the **Joint FAO/WHO Food Standards Programme**.
- The **main objectives** of these standards are:
 - To **protect the health** of consumers.
 - To **ensure fair practices** in the **food trade**.

Think:

- Know about the **Food Safety and Standards Authority of India**.

Science and Technology News

NexCAR19

- **NexCAR19**, the country's **first 'Made in India' CAR T-cell therapy**, was recently launched.
- The therapy was developed by **IIT Bombay** and the **Tata Memorial Centre**.

About NexCAR19:

- NexCAR19 is a type of **immunotherapy** known as **CAR T-cell therapy**.
- In this therapy, a patient's **immune cells (T cells)** are **engineered in a lab** to produce special proteins called **chimeric antigen receptors (CARs)**.
- These receptors are designed to recognize specific proteins, or antigens, found on the surface of cancer cells.
- **Purpose and Importance:** Treat different types of **cancer**, particularly blood cancers like **leukemia** and **lymphoma**. It's important because it represents a **major breakthrough in cancer treatment**. It provides a new, potentially **more effective way to fight cancer**, especially for patients for whom other treatments have failed.
- **Unique Features:** One of the standout features of NexCAR19 is its “**humanised**” **design**. It's tailored to **mimic the human immune system** more closely, which aims to enhance the therapy's effectiveness while minimizing the risk of immune system rejection.
- **Applications:** NexCAR19 is used mainly to **treat certain types of blood cancers**, including B-cell acute lymphoblastic leukemia (ALL), diffuse large B-cell lymphoma, follicular lymphoma, high-grade B-cell lymphoma, mantle cell lymphoma, multiple myeloma, and primary mediastinal large B-cell lymphoma.

Advantages: It's an **affordable CAR T-cell therapy**, costing significantly less than comparable treatments available globally. Lab and animal studies indicate **lower drug-related toxicities**, including reduced neurotoxicity and Cytokine Release Syndrome (CRS).

Challenges or Drawbacks: One significant concern is **cytokine release syndrome (CRS)**, a serious reaction that can occur following the CAR-T infusion. Additionally, while the therapy is promising, it **doesn't work for everyone** and **can be expensive**.

Hydrogel

- Researchers from the **Indian Institute of Science (IISc)** have developed a **sustainable hydrogel designed to combat the issue of microplastic pollution in water sources**.

Key points:

- The hydrogel developed by **IISc researchers features a unique three-layer polymer architecture**.
- It consists of **chitosan, polyvinyl alcohol, and polyaniline**, forming an **interpenetrating polymer network (IPN)**.
- Nanoclusters of a substance called **copper substitute polyoxometalate (Cu-POM)** are embedded into the polymer matrix, serving as catalysts for breaking down microplastics under UV light.
- The hydrogel efficiently **adsorbs and degrades significant amounts of microplastics from water**.
- To monitor the removal and degradation of microplastics, a **fluorescent dye is incorporated into the hydrogel**.
- The effectiveness of the hydrogel was demonstrated in tests, where it **removed approximately 95% and 93% of two different types of microplastics in near-neutral pH water**.
- The material was also tested for its durability and stability under various conditions and was found to be strong and stable.

What are microplastics?

- Microplastics are **tiny plastic particles that pose significant threats to human health and the environment**.
- They can enter our bodies through water consumption, **potentially leading to various illnesses**.
- These particles are not only harmful to human health but also pose dangers to **aquatic and terrestrial life**.
- They have been found in remote areas such as **polar ice caps and deep ocean trenches**, highlighting the extent of their environmental impact.

Queqiao-2

- The **China National Space Administration (CNSA)** recently announced the successful launch of the **Queqiao-2 satellite**.

Key points:

- It serves as a **communications relay satellite between ground operations on Earth and future lunar probe missions** on the far side of the moon, planned to operate until at least **2030**.
- The satellite features a **4.2-meter-diameter (13.8-foot) parabolic antenna, one of the largest deployed beyond Earth's orbit**.
- Queqiao-2 will support **China's Chang'e-6 lunar far-side sample return mission**, as well as future Chang'e-7 and -8 missions.
- It carries **three scientific instruments: an Extreme Ultraviolet Camera (EUC), a Grid-based Energetic Neutral Atom Imager (GENA), and the Lunar Orbit VLBI EXperiment (LOVEX), a very long baseline interferometer**.
- Additionally, the mission includes deploying two **experimental CubeSats, Tiandu-1 and Tiandu-2, which will orbit the Moon to test navigation and communication technologies**.

ISRO's Innovative Approach to Zero Orbital Debris

- ISRO's **PSLV-C58/XPoSat mission has achieved a remarkable feat by leaving virtually no debris in Earth's orbit**.
- This achievement is attributed to the **innovative use of the PSLV Orbital**

Experimental Module (POEM), developed by the Vikram Sarabhai Space Centre (VSSC).

POEM:

- POEM is powered by **solar panels and a lithium-ion battery mounted on the fuel tank of the rocket's fourth stage.**
- It is equipped with a **dedicated navigation, guidance, and control (NGC) system**, including four Sun sensors, a magnetometer, and gyroscopes, which communicate with **ISRO's NavIC satellite constellation for navigation.**
- POEM also features **helium control thrusters and a telecommand system for ground station communication.**

Key points:

- This achievement is **significant due to the escalating issue of space debris, particularly in low Earth orbit (LEO).**
- LEO debris consists of spacecraft fragments, rockets, defunct satellites, and fragments from anti-satellite missile tests, posing risks to operational satellites.
- **ISRO's Space Situational Assessment report 2022 noted a significant increase in the number of objects placed in space, highlighting the urgent need for effective debris mitigation strategies.**

Concerned Laws:

- While there are **no international laws specific to LEO debris**, most space-faring nations adhere to the **Space Debris Mitigation Guidelines 2002 set by the Inter-Agency Space Debris Coordination Committee (IADC)**, endorsed by the **U.N. in 2007.**
- **Aim: to reduce accidental collisions**, break-ups during operations, intentional destruction, and post-mission break-ups.
- They discourage the **long-term presence of spacecraft and launch vehicle orbital stages in LEO and limit their impact on the geosynchronous orbit (GEO).**

Various initiatives:

- Various space agencies have implemented **strategies to address space debris.**
- **NASA's Orbital Debris Program, initiated in 1979, focuses on reducing orbital debris and developing technologies** for tracking and removing existing debris.
- The **European Space Agency (ESA)** has adopted a **'Zero Debris charter,'** aiming for zero space debris **by 2030** and advocating for its adoption by other agencies.
- **Japan's Commercial Removal of Debris Demonstration (CRD2)** project is another effort to tackle the issue of space junk.

Miscellaneous News

Wayanad Wildlife Sanctuary:

- Wayanad Wildlife Sanctuary is located in **Wayanad, Kerala.**
- Established in: **1973.**
- **Objective:** Conserving the biological heritage of the region.
- It is an **integral part** of the **Nilgiri Biosphere Reserve.** The **Western Ghats, Nilgiri Sub-Cluster**, including all of the **sanctuary**, is under **consideration by the World Heritage Committee** for selection as a **World Heritage Site.**
- **Geographical Features:** The sanctuary includes four **hill ranges: Sulthan Bathery, Muthanga, Kurichiat, and Tholpetty.**
- **Rivers and Highways:** The **Kabini river**, a **tributary of the Kaveri River**, flows through the sanctuary.
- **Habitat and Ecosystem:** The sanctuary is home to both **moist and dry deciduous trees and semi-evergreen forests.**
- **Endangered Animals/Species:** It is home to **gaur, Indian elephant, deer, and Bengal tiger.** It also hosts the **dhole or Asiatic wild dog**, an **endangered large carnivore.**
- **Ecological Importance:** Home to over **3,700 known species** and a significant population of **Asian elephants.**
- **Challenges and Threats:** The sanctuary is battling the **encroachment of alien plant species.** Human pollution, cutting of trees, forest fire, wildlife population resulting food deficiency, disturbances in

the community forest, illegal poaching were the major threats to wildlife.

Need for time standard for moon's surface

- The need for a **standardized time system on the Moon has arisen due to the fact that time on the Moon behaves differently from time on Earth.**
- This difference is a **consequence of Einstein's Theory of General Relativity**, which explains that gravity can bend both space and time.
- As the **Moon has less gravity than Earth**, time moves slightly faster there.
- To address this, NASA is working on creating a time standard that can be used by various international organizations and private companies operating on the lunar surface.

About:

- Establishing a **lunar time standard involves deploying atomic clocks on the Moon.**
- These clocks will need to be placed at multiple locations due to factors like the **Moon's rotation and the presence of mascons**, which are dense areas beneath the lunar crust that affect the local gravity field and thus the flow of time.
- By combining the outputs of these clocks using an algorithm, a precise virtual timepiece for the Moon can be created, which can then be synchronized with **Coordinated Universal Time (UTC)** for seamless operations between the Earth and the Moon.

Standard time on Earth:

- **On Earth, UTC serves as the basis for most timekeeping systems and time zones.**
- Countries adjust their local time by adding or subtracting hours from UTC based on their position relative to the **Greenwich meridian.**
- This meridian, located in **Greenwich, England, serves as the prime meridian from which longitudes are measured.**
- Countries to the west of the Greenwich meridian subtract hours from UTC, while countries to the east add hours.
- This system allows for a **globally coordinated time standard despite the Earth's varying rotational speeds at different latitudes.**

Jiadhal River

- The Jiadhal River, a tributary of the Brahmaputra River in northern India, is facing the adverse effects of climate change, disrupting its once tranquil flow.

Key points:

- **Originating in the sub-Himalayan mountains of Arunachal Pradesh at an altitude of 1247m**, the river courses through a narrow gorge in **Arunachal Pradesh before entering the plains of Assam's Dhemaji district**, where it flows in braided channels.
- It finally meets the **Brahmaputra near Selamukh in Lakhimpur district.**
- However, due to the construction of an embankment over the Kherkutiya Suti of the Brahmaputra, **the river now merges with the Subansiri River.**
- Spanning a total length of **187 km**, the river's **topography transitions from hilly terrain in the upper basin (Himalayan range) to a plain area in the middle and downstream.**
- The Jiadhal River's catchment area covers **1053.20 sq.km.**, with **696.80 sq.km. in Assam and 356.4 sq.km. in Arunachal Pradesh.**
- It receives heavy rainfall, leading to a significant silt load from its **1346 sq. km catchment area during the rainy season.**
- This results in the considerable rise of its riverbed as the silt deposits on its bed in the plains.
- Known for its **frequent course changes and devastating floods**, the Jiadhal River exemplifies a **flashy river, causing floods with a sudden, high discharge over a short time (a few hours to a day) and carrying a high sediment load and debris.**

The Great Indian Bustard

- The **Supreme Court of India** has recently **recognised a fundamental right to be free from the adverse impacts of climate change.**
- This judgment has attracted significant attention, particularly from environmentalists, with a focus on its implications for the protection of the **Great Indian Bustard.**

About The Great Indian Bustard:

- The Great Indian Bustard is considered a **flagship species of grassland ecology**, indicating the health of the ecosystem.
- The majority of its population is **found in Rajasthan and Gujarat**, with smaller populations in **Maharashtra, Karnataka, and Andhra Pradesh**.
- The species is listed as **Critically Endangered** according to the **International Union for Conservation of Nature (IUCN)**.
- It is protected under **Schedule I of the Wildlife Protection Act, 1972**.
- The species is listed in **Appendix I** of both the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)** and the **Convention on Migratory Species (CMS)**, indicating it is among the most endangered species in the world.

Nagorno-Karabakh region

- Russian peacekeepers have started withdrawing from **Nagorno-Karabakh, a territory disputed between Azerbaijan and Armenia**.
- The conflict has affected ties between Russia and Armenia, with Armenia suspending its participation in the Moscow-led **Collective Security Treaty Organisation (CSTO)**.

About Nagorno-Karabakh region:

- **Geography:** Nagorno-Karabakh is a **landlocked, mountainous, and forested region** located in the **South Caucasus region**. It is **internationally recognized as part of Azerbaijan**.
- **Control:** Most of the region is controlled by **Armenian separatists**, despite being part of **Azerbaijan territory** since the Soviet era.
- **Current Status:** The area, while remaining in **Azerbaijan**, is **governed by separatist Armenians** who have declared it a republic called the "**Nagorno-Karabakh Autonomous Oblast**". The **Armenian government** supports the region politically and militarily but does not recognize it as independent.
- **Peace Efforts:** The **Organization for Security and Co-operation in Europe (OSCE) Minsk Group**, chaired by **France, Russia, and the US**, has tried to get the two

countries to reach a peace agreement for several years.

Electronic voting machines (EVMs)

- The **Election Commission of India (EC)** assured that it is **impossible to tamper with Electronic Voting Machines (EVMs) at any stage**.
- The court was hearing **petitions seeking cross-verification of 100% EVM votes with VVPAT paper slips**. Currently, **cross-verification of EVM-VVPAT happens only in five randomly selected polling booths in a constituency**.

About EVMs:

- **Electronic Voting Machines (EVMs)** are used to **record and tally votes in an electronic format, replacing traditional paper ballots and manual counting methods**.
- **Purpose:** To streamline the voting process, enhance accuracy, and speed up the tallying of election results.
- **EVM Components:** Typically consists of two units, the **control unit** and the **balloting unit**, linked by a cable. The **control unit is operated by election officials**, while **voters interact with the balloting unit**.
- The **Electronic Voting Machines (EVMs)** were **first used in India in 1982** during a **by-election in the Parur Assembly constituency of Kerala**.

About Voter-Verified Paper Audit Trail (VVPAT):

- VVPAT is a system that provides a **physical printout of the voter's ballot** as it was cast **electronically**.
- It serves as a **means for voters to verify that their vote has been recorded accurately and to audit the electronic results**.
- It was **first introduced in India in the 2014 Lok Sabha elections**.

Fourth global mass coral bleaching

- The **fourth global mass coral bleaching event** has been triggered by **extraordinary ocean temperatures**, as stated by the **US National Oceanic and Atmospheric Administration (NOAA)**.

- This event could have **serious consequences for ocean life** and **millions of people** who rely on reefs for food, jobs, and coastal defence.

Key points:

- The **primary reason** behind the **soaring temperatures** is the **rising emissions of heat-trapping greenhouse gases (GHGs)** such as **carbon dioxide** and **methane** in the atmosphere.
- Nearly **90%** of the extra **heat trapped by GHGs** has been absorbed by the oceans.

About Corals:

- **Coral Reefs:** Coral reefs are **large underwater structures composed of the skeletons of colonial marine invertebrates called coral.**
- **Types:** The three main types of coral reefs are **fringing reefs, barrier reefs, and atolls.**
- **Composition:** Reefs are built by and made up of thousands of tiny animals called **coral polyps**, which **secrete a hard exoskeleton of calcium carbonate.**
- Corals are classified as either **hard coral** or **soft coral.** Hard corals are the architects of coral reefs.
- Coral reefs, also referred to as "**rainforests of the sea**", have existed on the Earth for nearly 450 million years.
- **Australia's Great Barrier Reef is the largest in the world,** stretching across 2,028 kilometres.

Did you know:

- **Coral Bleaching:** The phenomenon where **coral colonies lose their vibrant colors** due to the expulsion of **symbiotic zooxanthellae algae** from their tissues, leaving them white or pale. This is usually a **stress response.**
- **Primary Causes:** Major factors include **increased sea temperatures, solar irradiance, ocean acidification, pollution, and changes in sea level.**

Fossils prehistoric snake found in in Gujarat

- Researchers at **IIT Roorkee discovered fossils** of one of the **largest snakes**, named **Vasuki Indicus**, in **Kutch, Gujarat.**

- The snake likely lived 47 million years ago during the **Middle Eocene period.**

Key points:

- Vasuki Indicus belonged to the now-extinct **Madtsoiidae snake family** but represents a unique lineage from India.
- The researchers found 27 pieces of a well-preserved vertebral column of the snake at the **Panandhro Lignite Mine in Kutch.**
- The discovery could improve understanding of how the **madtsoiid species** evolved in different climates and the **factors that contributed to large body sizes.**
- **Much like present-day pythons and anacondas,** Vasuki Indicus killed its prey by suffocation.
- The name **Vasuki** refers to the mythical snake often depicted around the neck of the Hindu god Shiva.

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