

# FORTUNE Prelims Precise

AUGUST 2023



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# Toppers in Top 100



# History & Culture

## Seethakali Folk Art



- **Perinad Seethakali Sangham**, the only registered Seethakali performing group, will be performing outside Kerala for the first time.
- **Seethakali** (Seetha's play) is a **centuries-old folk art form** that is believed to have originated at **Perinad in Kollam district, Kerala**.
- Performed by the veda and pulaya communities, it is a dance drama depicting episodes from Ramayan during the **Onam festival** in the state.

## Shree Jagannath Temple Puri

- » The **Archaeological Survey of India (ASI)** has sought permission to inspect the inner chamber of the **Ratna Bhandar (treasury)** of the **Shree Jagannath Temple in Puri, Odisha**.



- The Jagannath temple is devoted to **Lord Jagannath (Vishnu)** along with his brother **Lord Balabhadra** and sister **Devi Subhadra**.
- It was constructed in Kalinga style by **Ganga Dynasty ruler Ananta Varman Chodaganga Deva** dating back to the **12th Century CE**.
- It is one of the four pilgrimage sites of **Char Dham Pilgrimage** (others are **Badrinath, Dwaraka and Rameswaram**) and known as the **White Pagoda**.
- **Nabakalebara** is the ritualistic recreation of the **wooden icons** of Jagannath, Balabhadra and Subhadra at the Jagannath temple. It is performed during the **8th, 12th or 19th year after the previous Nabakalebara**.

## Mylara Cult



- » The recent discovery of **two sculptures** in Udupi district of Karnataka has proved that the ancient Mylara cult existed in the **coastal region**.
- Mylara is a **folk deity**, identified as a **manifestation of Lord Shiva**.
- This deity is commonly known as **Mylara in Karnataka** and as **Khandoba in Maharashtra**.
- The cult is prevalent in the **southern part of India** including Karnataka, Maharashtra, Andhra Pradesh, and Tamil Nadu.
- The **15th century sculpture** depicts a royal hero on a horse holding a sword and a bowl in his hands. The **sitting posture of the horse is unique**.
- The **small stone tablet sculpture** depicting Mylara and Mylaladevi both mounted on an ornate horse while holding **swords in their right hands** appears to be an artifact from the **17th century**.

## Kalbelia Dance

- » It's a folk dance performed by a **Rajasthani tribe** called **Kalbelia** (belonging to the Scheduled Tribe).



- Included in **UNESCO list of Intangible Cultural Heritage (ICH)** in 2010.
- It is **performed by women** while the **men play the instruments and the music**.
- It is well known by other names like '**Sapera Dance**' or '**Snake Charmer Dance**'.
- **Instruments:** The male musicians typically play the **dhol** (a drum), the **pungi** (a snake charmer's pipe), and the **khanjari** (a tambourine).



## Sri Aurobindo Ghosh

- » The 151st birth anniversary of **Sri Aurobindo** was celebrated on 15th August.
- He was a **yogi, seer, philosopher, poet, and Indian nationalist** who propounded a philosophy of **divine life on earth** through spiritual evolution.
- He was influenced by the **American, Italian and the French Revolution** and played a significant role in the Indian freedom struggle.
- He attended Congress sessions and helped to establish the **Anushilan Samiti of Calcutta in 1902**.
- Aurobindo was arrested in connection with the **Alipore Conspiracy Case in 1908**.
- Along with Bankim Chandra Chatterjee, Tilak and Dayanand, he developed **the theory of nationalism in India**.
- He propounded **Vedanta philosophy** which saw unity and oneness in man and God.
- His idea of **Swaraj** was based on **the old village community** which was **self-sufficient, autonomous and self-governing**.



### Major Contributions

- He was the editor of the newspaper **Bande Mataram** (founded in 1905 by Bipin Chandra Pal ) and wrote articles for **Jugantar magazine**.
- In 1914, he started publishing a magazine called **Arya**.
- He wrote '**Savitri**', an epic poem with about 24000 lines.
- In Pondicherry he founded a community of spiritual seekers, which took shape as the **Sri Aurobindo Ashram** in 1926.
- He developed a kind of Yoga called **Integral Yoga**.

## Khadi Rakshasoot

- » Recently, the **Khadi and Village Industries Commission (KVIC)** launched 'Khadi Rakshasoot'.
- It is **low-cost Khadi- Rakhi** crafted by **skilled spinner sisters** residing in rural India.
- It also incorporates natural elements such as **basil, tomato, and brinjal seeds**, along with the **sacred cow dung**, to enhance the Rakhi's composition.
- The initiative has two goals of commemorating the festival of **Raksha Bandhan** and to promote the **Atmanirbhar Bharat**.

## Artworks Presented to Greece

- » The Prime Minister recently presented several artworks and traditional items to the Prime Minister and the President of Greece during his visit to the country.

### Meghalaya Shawls

- Meghalaya shawls were **originally woven for the Khasi and Jaintia royalty** as a symbol of their power and status.



- It is worn during ceremonial occasions and festivals,

### Dokra Art

- Dokra is a form of **ancient bell metal craft practised** by the Ojha metalsmiths living in states like **Jharkhand, Chhattisgarh, Odisha, West Bengal and Telangana**.
- The name '**Dhokra**' comes from the **Dhokra Damar tribes**( the traditional **metal smiths of West Bengal**).
- The **dancing girl of Mohenjo-Daro** (Harappan Civilization) is one of the **earliest dhokra artefacts** that is now known.



- It is combining metallurgical skills with wax techniques employing the lost wax technique.
- In 2018, **Dokra craft from West Bengal** was presented with the **Geographical Indication (GI) tag**.

### Bidri Artware

- **Bidri artware**, a form of **metal handicraft originated in Bidar(Karnataka)**, during the **rule of Bahmani Sultans**.
- It has also been accorded the **Geographical Indication (GI) tag**.
- It is an **art of inlaying alloys**. Motifs are **etched** on them with **silver wire**.



### Gnanamuyarchi

- » Palm manuscripts from the 18th Century, titled Gnanamuyarchi, have been discovered in an **Armenian monastery in Northern Italy**.
- The manuscript is a **copy of the first Tamil translation of Spiritual Exercise**, a 16th century Latin work of St. Ignatius.
- The **translation was mostly done by Michele Bertoldi**, known in Tamil as **Gnanaprakasasamy**.

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## Polity & Governance

### Digital Personal Data Protection Act 2023

- » The President of India recently granted assent to the **Digital Personal Data Protection Bill (DPDP), 2023**.

#### Key features

- Under the new Act,
  - ❖ **Personal data** has been defined as any data about an individual identifiable by or in relation to such data.
  - ❖ **Data Principal** has been defined as an individual to whom the personal data relates.
  - ❖ **Data Fiduciary** means any person who, alone or in conjunction with other persons, determines the purpose and means of processing personal data.
  - ❖ Any person who processes personal data on behalf of a data fiduciary has been termed a **Data Processor**.
- The Act **applies to the processing of digital personal data within India** when collected from Data Principal's online or, if collected offline, is then digitised.
- A **Data Protection Board of India** has been envisaged, which will have the power to direct any **urgent remedial or mitigation measures** in case of a personal data breach, **enquire into such infringement, and impose suitable penalties**.
- The act **grants the power to the Government to exempt itself and its agencies from most requirements of the act** on certain grounds such as sovereignty and integrity of India and security of the State.

### Pharmacy (Amendment) Act 2023

- » Pharmacy (Amendment) Act, 2023 was recently adopted which amends the **Pharmacy Act 1948** regulating the practice and profession of pharmacy.



- The Act will extend the Pharmacy Act 1948 to the **Union Territory of Jammu and Kashmir**.
- It specifies that anyone who is registered as a pharmacist or possesses requisite qualifications under the **Jammu and Kashmir Pharmacy Act 2011** will be deemed to be registered as a pharmacist under the Pharmacy Act 1948.
- The Authority will make recommendations to the **Lieutenant Governor** regarding **transfers and postings** of officials and disciplinary matters.
- All decisions of the Authority will be based on a majority vote of the members present and voting.

### Anusandhan National Research Foundation Bill

- » Recently, the President of India has granted assent to the Anusandhan National Research Foundation (NRF) Bill, 2023.
- It will establish **National Research Foundation (NRF)**, an apex body to provide high-level strategic direction of scientific research in India as recommended by **National Education Policy (NEP)**
- It will replace the **Science and Engineering Research Board (SERB)** set up under the **Science and Engineering Research Board Act, 2008**.
- The **Department of Science and Technology (DST)** will be the administrative department of NRF which will be governed by a **Governing Board** consisting of eminent researchers and professionals. **Prime Minister** will be the **ex-officio President** of the Board
- NRF's functioning will be governed by an **Executive Council** chaired by the **Principal Scientific Advisor**

### Government of National Capital Territory of Delhi (GNCTD) (Amendment) Act 2023

- » Recently, GNCTD (Amendment) Act repealed the **National Capital Territory of Delhi (Amendment) Ordinance 2023**.
- The Act excludes "**Services**" under **Schedule VII of the constitution** from the purview of the Delhi Legislative Assembly i.e., the **officers of the various 'services' such as IAS, IPS, DANICS, and DANIPS**, who have been allocated to Delhi by the Union of India, will now come under the **administrative control of the Union Government**.
- It also establishes the **National Capital Civil Services Authority**, which consists of the **Chief Minister, Chief Secretary of Delhi, Principal Home Secretary of Delhi** (later two will be appointed by the union government).

### Registration of Birth and Death (Amendment) Act, 2023

- » Recently, the Registration of Birth and Death (Amendment) Act, 2023 amended the **Registration of Birth and Death Act of 1969**.
- The registration of births and deaths falls under the **Concurrent List** and the Act provides for the **regulation and registration of births and deaths**.
- As per the Act, the **Registrar General of India** will maintain a **national database** of registered births and deaths.
- **Chief Registrars and Registrars** will be obligated to share data of registered births and deaths to the national database.
- The Chief Registrar shall maintain a similar database at the **state level**.
- The Act introduced the concept of **digital birth certificates** and **Aadhaar details of parents and informants** will be linked to the birth certificates.

### Grant for Research and Entrepreneurship across Aspiring Innovators in Technical Textiles (GREAT) Scheme

- » Recently, the **Union Ministry of Textiles** released the guidelines for the GREAT scheme.
- GREAT Scheme focuses on **supporting individuals and companies** to translate prototypes to technologies & products.
- It aims for the development of the **technical textiles startup ecosystem** in India.

#### Funding pattern of the scheme:

- ☞ A grant-in-aid of up to **Rs 50 lakh for up to a period of 18 months** will be provided.
- ☞ The textile ministry will additionally provide **10% of the total grant-in-aid** to incubators.

- ☞ Only a minimum of **10% contribution** has to be made by the entrepreneur

- The initiative aims to collaborate with **IITs, NITs Textiles Research Associations, and Centers of Excellence.**
- To streamline the application process and expedite the selection of potential beneficiaries, an **online portal** has been launched
- The scheme will come under the **National Technical Textiles Mission.**

## National Social Assistance Programme

- » The **Ministry of Rural Development (MoRD)** diverted funds from the National Social Assistance Programme (NSAP) for **publicising** some of its other schemes.
- **Launched in 1995**, National Social Assistance Programme (NSAP) represents a significant step towards the fulfilment of the **Directive Principles in Article 41 and 42** of the Constitution recognizing the concurrent responsibility of the Central and the State Governments in the matter.
- It provides **financial assistance** to Below Poverty Line (BPL) individuals to the elderly, widows and persons with disabilities and bereaved families on death of primary breadwinner, in the form of social pensions.

### 5 Components of NSAP and their respective eligibility criteria are -

#### Indira Gandhi National Old Age Pension Scheme (IGNOAPS) :

- The eligible age for IGNOAPS is **60 years.**
- The pension is Rs.200 per month. for persons between 60 years and 79 years.
- For persons who are **80 years and above** the pension is **Rs.500/- per month.**

#### Indira Gandhi National Widow Pension Scheme (IGNWPS) :

- The eligible age is **40 years** and the pension is Rs.300 per month.
- After attaining the age of **80 years**, the beneficiary will get **Rs.500/- per month.**

#### Indira Gandhi National Disability Pension Scheme (IGNDPS) :

- The eligible age for the pensioner is **18 years and above** and the **disability level** has to be **80%.**
- The amount is Rs.300 per month and after attaining the age of **80 years**, the beneficiary will get **Rs 500/- per month.**
- **Dwarfs** will also be an eligible category for this pension.

#### National Family Benefit Scheme (NFBS) :

- **Rs. 20000/-** will be given as a lump sum assistance to the bereaved household in the event of death of the bread – winner.
- The death of such a bread – winner should have occurred whilst he/ she is more than 18 years of age and less than 60 years of age.
- The assistance would be given to **every case of death of the breadwinner in a family.**

#### Annapurna Scheme :

- **10 kgs of food grains** (wheat or rice) is given per month per beneficiary.
- The scheme aims at providing food security to meet the requirements of those eligible old aged persons who have remained uncovered under the IGNOAPS.

## Medical Termination of Pregnancy Amendment Act (2021)

- » Recently, the Supreme Court allowed a plea for termination of a 26 week old pregnancy by a 25-year-old rape survivor.

#### Features of MTP Act 2021:

- 1. Termination due to Contraceptive Failure** - **Unmarried women** are covered upto 20 weeks, earlier only married women were allowed.
- 2. Upper Gestational period limit for Special Categories** - Increased from **20 to 24 weeks** for rape survivors, victims of incest and other vulnerable women.
- 3. Opinion needed for termination of pregnancy** -
  - ☞ **1 Registered Medical Practitioner (RMP)** till 20 weeks.



➤ 2 RMP for 20- 24 weeks.

➤ Beyond 24 weeks, a **medical board** has to certify significant foetus abnormalities or danger to life of the mother for termination of pregnancy.

**4. Invasion of womens privacy** - Fine or imprisonment upto 1 year.

### Project Accelerated Mission for Better Employment and Retention (AMBER)

- » Recently, the **Ministry of Skill Development and Entrepreneurship (MSDE)** launched Project 'AMBER'.
- It is a **joint initiative** under the **SANKALP programme** by the **National Skill Development Corporation (NSDC)**, **Generation India Foundation (GIF)**, and **Amazon Web Services India Private Limited (AWS India)**.
- The objective is to **train 30,000 youth (50% women)**, focusing on women and underprivileged groups.
- As part of this collaboration, the learners take part in **AWS (re/Start)**, a workforce development program for **unemployed and underemployed individuals**.
- It will bring **entry-level talent** into the workforce and help individuals to launch successful cloud careers, organisations to increase their **competitive edge with in-demand talent, and communities**.

### PM E-Bus Sewa Scheme

- » The Union Cabinet has approved the PM e-bus Sewa scheme of the **Ministry of Housing and Urban Affairs**.
- It aims to introduce **10,000 electric buses** in city bus services across India.
- **Financial Allocation:** The central government will allocate **₹20,000 crore** in subsidies. It will be on a **cost-sharing basis** with states and 100% for UTs without legislature.
- **Duration:** The scheme is designed to sustain bus **operations for 10 years**.
- E-buses will be deployed across 169 cities using a **public private partnership (PPP) model**.

- The scheme could create **45,000 to 55,000 job opportunities** and reduce pollution.

### Advertising Standards Council of India

- » Advertising Standards Council of India tightens norms to keep celebrity influencers in check as violations rise
- ASCI is a **voluntary self-regulatory organisation** of the advertising industry in India established in **1985**.
- It is registered as a **non-profit company under the Company Act**.
- Their mandate is that all advertising material must be truthful, legal and honest, decent and not objectify women, safe for consumers - especially children and last but not the least, fair to their competitors.

### Offshore Areas Mineral (Development and Regulation) Amendment Act 2023

- » Recently, the Offshore Areas Mineral (Development and Regulation) Amendment Bill, 2023, received assent from the President.
- It amends the OAM Act, 2002.
- It provides for the development and regulation of mineral resources in the territorial waters, continental shelf, exclusive economic zone (EEZ), and other maritime zones of India.

#### Key Features of Amendment

- Provides **two types of operating rights** to the private sector by competitive bidding, viz. **production lease, and composite licence**.
- Allows the administering authority to grant a composite licence or production lease to the government or a government company.
- An **Offshore Areas Mineral Trust** will manage funds under the Public Account of India that will be non-lapsable in nature.
- **Mining of atomic minerals**, exploration, production, and composite licences will be **granted only to the government or government companies**.

## Incremental cash reserve ratio

- » Recently, the **Reserve Bank of India (RBI)** announced that it would discontinue the incremental cash reserve ratio (ICRR) in a phased manner.
- **Cash Reserve Ratio:** The amount of cash that the **scheduled commercial banks** are required to maintain with RBI.
- ICRR is an additional **cash balance which the RBI can ask banks to maintain over and above the CRR** for a specific period.
- Earlier, RBI announced ICRR as a **temporary measure to absorb excess liquidity** from the banking system.
- After a review, the RBI has decided to **discontinue the ICRR** in a phased manner.

## RBI's Digital Payments Index (RBI-DPI)

- » The semi-annually published Reserve Bank of India's Digital Payments Index **rose to 395.57 in March 2023 from 377.46 in September 2022.**
- The RBI introduced the composite DPI in **January 2021 with March 2018 as the base, to capture digitisation of payments across the country.**

### It comprises 5 parameters;

- ▢ Payment enablers
- ▢ Payment infrastructure- Demand side
- ▢ Payment infrastructure- Supply side
- ▢ Payment performance
- ▢ Consumer centricity
- The RBI-DPI index has **increased across all parameters driven by significant growth in payment infrastructure and payment performance.**

## Lakhpati Didi Scheme

- » The Prime Minister in his independence day speech announced the **Lakhpati Didi Scheme.**
- The scheme, previously implemented in a few states, aimed at **providing skill training to 2 crore women across the nation.**
- The government will be working with **women self help groups (SHGs)** for the training in a range of **practical skills** such as **plumbing, operation and repair of drones and LED bulb manufacturing** that align with emerging industry demands.

## Vivad se Vishwas II

- » Recently, the **Ministry of Finance** launched the Vivad se Vishwas II scheme.
- It is a **voluntary settlement scheme** to resolve long-standing contractual disputes involving **government agencies.**
- The scheme aims to provide a platform for **resolving contractual disputes** and to promote **ease of doing business.**
- It will be implemented through the **Government e-Marketplace (GeM) portal.**
- The scheme will cover **only domestic arbitration** and not international arbitration.

**Vivad Se Vishwas- I Scheme** - It is a direct tax scheme introduced by the Government of India in 2020, which settles disputes between **taxpayers and the income tax department.**

## Finger Minutiae Record – Finger Image Record (FMR-FIR) Modality

- » Recently, the **Unique Identification Authority of India (UIDAI)** introduced Finger Minutiae Record–Finger Image Record (FMR-FIR) modality.
- It is an **artificial intelligence based technology** which aims to **address fraud in the Aadhaar-enabled Payment System (AePS).**
- FMR-FIR combines **finger minutiae** and **finger image** to ensure the authenticity of fingerprint biometrics during Aadhaar authentication.



- It operates in real-time, providing instant verification results and it can differentiate between a **genuine, “live” finger and a cloned or fake fingerprint.**

### Goldilocks scenario

- » Recently, India witnessed a moderate increase in retail inflation thereby creating the **Goldilocks scenario.**
- A steady-growing economy with moderate inflation and low unemployment rate creating optimal conditions for long-term growth represents a Goldilocks economy.
- Such an economy has steady **economic growth, preventing a recession, but not so much growth** that inflation rises by too much.

### Bharat NCAP



- » The **Ministry of Road Transport and Highways** has launched the Bharat New Car Assessment Programme (Bharat NCAP).
- Under Bharat NCAP vehicles undergo **strict crash tests.** Safety ratings from **one to five stars** are assigned based on **Automotive Industry Standard 197.**
- **Tests include** - Frontal Offset, Side Impact, and PoleSide Impact.

#### Testing Parameters:

- **Adult Occupant Protection:** Evaluates protection for Bharat New Car Assessment Programme adults in crashes.
- **Child Occupant Protection:** Assesses child passenger safety.
- **Safety Assist Technologies:** Checks safety technologies in vehicles.

### Self Reliant India (SRI) Fund

- » As part of **Aatmanirbhar Bharat package**, Self Reliant India (SRI) Fund has been set up to infuse Rs. 50,000 crore as **equity funding for MSMEs.**
- **Launched in 2021** by the **Ministry of Micro Small and Medium Enterprises**, the initiative aims to provide equity funding to viable and **promising MSMEs to help them grow and become larger units.**
- The Self-Reliant India (SRI) Fund has been established with Rs. **10,000 crores contributed by the Government of India** and **Rs. 40,000 crores from Private Equity and Venture Capital funds.**
- The SRI Fund operates through a **mother-fund and daughter-fund structure** for equity or quasi-equity investments. The **NSIC Venture Capital Fund Limited (NVCFL)** is registered as the **Mother Fund** under the SRI Fund implementation.

### UDGAM PORTAL

- » RBI recently launched the UDGAM (Unclaimed Deposits – Gateway to Access Information) portal.
- The UDGAM Portal aims to digitally enable bank customers to find their **unclaimed deposits** across **multiple banks in one place** promoting financial inclusivity.
- **Unclaimed deposits:** Balances in savings/current accounts that **are not operated for 10 years**, or **term deposits not claimed within 10 years** from the date of maturity.

### Amrit Bharat Station Scheme

- » The PM laid the foundation stone for redevelopment of 508 railway stations under the **Amrit Bharat Station Scheme.**
- The Amrit Bharat Station Scheme was launched in **February 2023** by the **Ministry of Railway.**
- Stations will be **developed as ‘City Centres’** in a continuous improvement and integrated approach for overall city development, centred around the station.
- The **design of station buildings** will be inspired by local culture, heritage and architecture.

# International Relations

## Traditional Medicine Summit

- » A **first-of-its-kind global summit on Traditional Medicine** took place at **Gandhinagar, Gujarat**, alongside the **G20 health ministerial meeting**.
- The summit is **organised by the World Health Organisation and co-hosted by the Ministry of Ayush**.
- It aims to **mobilise political commitment and evidence-based action on traditional medicine**.
- The **WHO, with the support of the Government of India**, established in **March 2022** the **WHO Global Centre for Traditional Medicine, Jamnagar, Gujarat**, as a **knowledge hub** with a mission to catalyse ancient wisdom and modern science for the health and well-being of people and the planet.

## Kuril Islands dispute

- » Recently, the dispute over the Kuril Islands between **Tokyo and Moscow** came up again in the midst of the Russia-Ukraine war.



### Historical Background:

- ✍ Soviet forces seized the strategically located Kuril Islands in Russia, in the closing days of **WWII**.
- ✍ Russia administers all the Kuril Islands. However, Japan considers them as part of its Northern Territories.
- The Kuril Islands are a **chain of islands** stretching from the **Japanese Island of Hokkaido** to the southern tip of **Russia's Kamchatka Peninsula**.
- The islands separate the **Okhotsk Sea** from the **North Pacific Ocean**.

## Global Initiative on Digital Health

- » The **World Health Organization (WHO)** and the **G20 India presidency** announced a new **Global Initiative on Digital Health (GIDH)**.
- **Global Initiative on Digital Health** is the first such global initiative aimed at data convergence, the interface of health platforms and investments in the digital health space around the globe.
- GIDH will be a **WHO Managed Network ("Network of Networks")** that will promote equitable access to digital health

### The aims of GIDH

- ➡ **ALIGN** efforts to support the Global Strategy on Digital Health 2020–2025;
- ➡ **SUPPORT** quality assured technical assistance to develop and strengthen standards-based and interoperable systems aligned to global best practices, norms and standards;
- ➡ **FACILITATE** the deliberate use of quality assured digital transformation tools that enable governments to manage their digital health transformation journey.

## BRICS

- » The **15th BRICS summit** was held at the **Sandton Convention Centre in Johannesburg, South Africa**.
- In **2001** economist **Jim O'Neill** introduced the acronym BRIC, which at first did not include South Africa.
- BRIC countries started their dialogue in **2006**, with the **induction of South Africa in 2010**, **BRICS came into existence**.
- It **institutionalised the New Development Bank** in 2014 through the **Fortaleza declaration**.

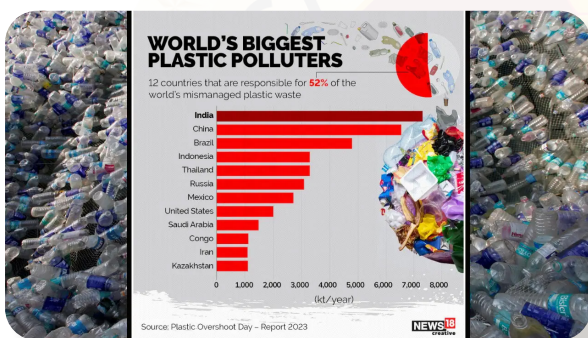
### Outcomes of 15 th Summit of BRICS

- ✍ **Expansion of BRICS** : Summit invited **six countries (Iran, the United Arab Emirates, Saudi Arabia, Argentina, Egypt, and Ethiopia)** to join the alliance.
- ✍ Member countries adopted the **Johannesburg II Declaration** for inclusive multilateralism.



### Plastic Overshoot Day Report 2023

- » The first Plastic Overshoot Day was marked on **28 July, 2023** as per the first Plastic Overshoot Day Report released by the **Swiss based research consultancy Earth Action**.
- **Plastic Overshoot Day** marks the **point when the amount of plastic waste generated exceeds the world's capacity to manage it**
- **Each country has its own Plastic Overshoot Day**, which is determined by the amount of plastic waste generated and the country's capacity to manage it.
- **India, China, Brazil, are among the 12 countries that are responsible for 52 percent of the world's mismanaged plastic waste.**



» In India, generalist species like the **Feral Rock Pigeon, Ashy Prinia, Asian Koel, and Indian Peafowl** are doing well. However, a substantial **60% of species show long-term declines**, and **40% are currently in decline**.

» It stressed the urgent need for the **conservation of the most critically threatened bird species** in India which includes **Jerdon's Courser, Great Indian Bustard, White-bellied Heron, Bengal Florican, and Finn's Weaver**.

### Deemed Forest

- » The **Odisha government** has withdrawn a controversial order issued on August 11, which told district officials that '**deemed forests**' as a category would cease to exist under the **Forest Conservation Amendment Act 2023**.
- **Deemed forest** refers to land tracts that **appear to be a "forest"**, but have **not been notified so by the government or in historical records**.
- The concept came into existence following a Supreme Court order in the **T N Godavarman Thirumalpad case (1996)**, in which the Court said forest will not only include forest as understood in the dictionary sense, but also any area recorded as forest in official records, irrespective of ownership.
- They have been **identified in Odisha in 1998** by an expert committee but many were not notified as forests. Many tribals depend on these '**forest tracts**' and the earlier order to remove this category would have negatively impacted them.
- They account for about **1% of the total forest land in the country**.

### State of India's Birds (SoIB) Report 2023

- » The State of India's Birds (SoIB) 2023 was released, which highlighted that despite thriving a few bird species, there is a substantial decline in numerous bird species.
- The SoIB 2023 is a **first-of-its-kind collaborative effort of 13 government and non-government organisations**, including the **Bombay Natural History Society (BNHS), Wildlife Institute of India (WII), and Zoological Survey of India (ZSI), Wildlife Trust of India (WTI), Worldwide Fund for Nature-India (WWF-India)** among others.

### Earth Overshoot Day

- » August 2 is observed as the Earth Overshoot Day for the year 2023.
- Earth Overshoot Day is marked as **the date when humanity's demand for ecological resources and services each year exceeds what Earth can regenerate in that year**.

- It has been measured by **Global Footprint Network** (international research organisation) each year since 1971.
- It is **calculated by multiplying the planet's biocapacity** (the quantity of ecological resources Earth can generate each year) by **humanity's Ecological Footprint (humanity's demand for that year) by 365.**

### Belém Declaration

- » Member countries of the **Amazon Cooperation Treaty Organization (ACTO)** signed the **Belém Declaration in the Brazilian city of Belém.**
- **ACTO** is an **intergovernmental socio-environmental block** formed by **signing of the Amazon Cooperation Treaty.**
- **Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela** are its members.
- The **Belém Declaration** calls for **ensuring participation of Indigenous Peoples in decision-making.**
- It also **commits to launching the Amazon Alliance to Combat Deforestation.**

### Inclusive Conservation Initiative (ICI)

- » Recently, a report summarising the first phase of implementation of the Inclusive Conservation Initiative (ICI) was released.
- Inclusive Conservation Initiative (ICI) is a **global project** that aims to support **Indigenous Peoples and Local Communities (IPLCs)** in their efforts to protect and manage their lands, territories and resources that are rich in biodiversity and ecosystems.
- It is funded by the **Global Environment Facility (GEF)** and implemented by **Conservation International (CI)** and the **International Union for the Conservation of Nature (IUCN)** as joint GEF Implementing Agencies.
- The ICI project was endorsed by the GEF in January 2022 and is expected to run for **five years until 2027.**

### Debt for Nature Swap

- » Recently, **Gabon announced a \$500 million debt-for-nature swap** which is the largest such deal signed by any country.
- **Debt-for-nature swaps:** allow heavily indebted developing countries to seek help from financial institutions in the developed world with paying off their debt if they agree to spend on the **conservation of natural resources.**
- Usually banks in developed countries buy the debts of such countries and replace them with new loans which mature later. These loans usually have **lower interest rates.**

### Benefits of such a swap

- » **Creditors** can advance their **development cooperation** and climate finance goals, improve their chances of debt recovery, and strengthen their diplomatic ties with debtor nations.
- » **Debtors** can **reduce their external debt** and debt service obligations, allocate fiscal resources towards other development priorities, and promote climate action through domestic investment.

### Palaeo Proxies

- » A recent study concluded that claims of a particular day being warmer than 100,000 years as unscientific, since the data collection before the invention of thermometers are based on palaeo proxies only.
- **Palaeo proxies**, short for paleoclimate proxies, are **indirect pieces of evidence** that scientists use **to infer past climate conditions.**
- **Proxies** are **biological, chemical, or physical indicators** that respond to temperature changes or other environmental conditions, **preserving a record of past climate in their properties.**
- The proxies **can help in understanding the response of modern humans to climate change.** However, such proxies are **not suitable for estimating daily temperatures** and such data could **jeopardise the credibility of climate action efforts.**



## Global Biodiversity Framework Fund (GBFF)

- » The **Global Biodiversity Framework Fund (GBFF)** was ratified and launched during the 7th Assembly of the Global Environment Facility (GEF) in Vancouver, Canada.
- Global Biodiversity Framework Fund is a **special trust fund** under the Global Environment Facility, to support the implementation of the **Kunming-Montreal Global Biodiversity Framework agreed at COP15 of Convention on Biological Diversity**.
- The **World Bank** will be the **Trustee of the GBFF**.
- It is designed to mobilise and accelerate investment in the conservation and sustainability of wild species and ecosystems, whose health is under threat from wildfires, flooding, extreme weather, and human activity including urban sprawl.

## Kunming-Montreal Global Biodiversity Framework

- » The **Kunming-Montreal Global Biodiversity Framework** was adopted at **COP15 of Convention on Biological Diversity (2022)**.
- » It includes **4 goals and 23 targets for achievement by 2030**.
- » It aims to **restore ecosystems, conserve areas, prevent species extinction, reduce**
- » **Pollution risks, tackle climate change, and more.**

## Aqueduct Water Risk Atlas (AWRA)

- » New data from the Aqueduct Water Risk Atlas of World Resources Institute (WRI) has been released.
- Aqueduct Water Risk Atlas is a **globally accessible online collection of local-level water risk indicators**, as well as a global standard for measuring and reporting geographic water risk.
- It is released by the **World Resources Institute (WRI)**, a **global research non-profit organisation** founded in **1982**.

- It creates **high-resolution, customizable global maps of water risk** using a robust, peer-reviewed approach and the best available data.

## Key findings

- ★ The **most water-stressed regions are West Asia and North Africa**, where **83% of the population** is exposed to extremely high-water stress and **South Asia**, where **74% is exposed**.
- ★ **India** is placed **24th among the world's 25 'extremely water-stressed'** countries.
- ★ **Chandigarh** was the most water-stressed, followed by **Haryana, Rajasthan and Uttar Pradesh**.

## MAINS MENTORSHIP PROGRAM

Malini S, IFS  
AIR 81, 2023



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## Recent Addition to the Geographical Indication (GI) Tag List

Item	State/UT	Description
Matti Banana	Tamil Nadu (Kanyakumari)	It is a <b>traditional table banana</b> cultivar of medicinal value and the <b>fruit is highly fragrant, sweet with sub-acid flavour, firm texture and powdery nature.</b>
Chokuwa Rice (Magic Rice)	Assam	The <b>semi-glutinous winter rice</b> has been a staple of the troops of the <b>Ahom dynasty.</b>
Mushk Budji	Jammu and Kashmir	<b>Indigenous aromatic rice variety</b> , mostly grown in 5 villages of Kokernag in south Kashmir.
Bidriware	Karnataka	Form of <b>metal handicraft</b> that has <b>Persian influences.</b>
Mankurad Mango	Goa	It is believed that the <b>Portuguese</b> brought the mango saplings from <b>Brazil</b> and planted them in Goa.
Jalesar Dhatu Shilp	Uttar Pradesh	Patronised by the <b>Mughal emperors</b> , it is a <b>unique form of brassware.</b>
Goan Bebinca	Goa	<b>Layered cake</b> baked in an earthen oven after each layer is added.
Koftgari Metal Craft	Rajasthan (Udaipur)	It is also known as <b>Damascening or Inlaying</b> . It is a technique of <b>decorating metal objects</b> with fine wires or strips of gold or silver.
Kashidakari Craft	Rajasthan (Bikaner)	It is a <b>form of embroidery</b> that uses <b>gold or silver threads</b> to create elaborate designs on fabrics

## Cloudburst

- » Many people have died in incidents related to heavy rainfall in **Himachal Pradesh.**
- A **cloudburst** is a **localised but intense rainfall activity**, which is most common in hilly regions.
- A **rainfall of 10 cm or more in an hour over a roughly 10 km x 10 km area is classified as a cloudburst event.**
- During a cloudburst event, **a place receives about 10% of its annual rainfall within an hour.**
- Most of these happen in the **Himalayan states** where the local topology, wind systems, and temperature gradients between the lower and upper atmosphere facilitate the occurrence of such events.
- The IMD forecasts rainfall events well in advance, but it **does not predict the quantum of rainfall** and hence **specific cloudburst events cannot be forecast.**

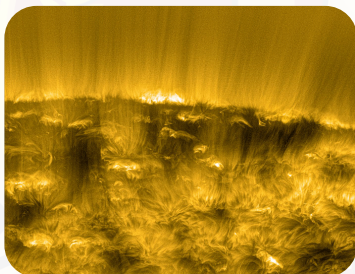


## Pacific Decadal Oscillation (PDO)

- » A recent study revealed that a cyclical event called the Pacific Decadal Oscillation, which repeats every 20-30 years, could make cyclones that originate near the Equator more frequent in the coming years.
- Pacific Decadal Oscillation (PDO) is a **long-term ocean fluctuation** in the **Pacific Ocean**.
- The PDO has **two primary phases: positive (warm) and negative (cool)**.
- During the **positive phase**, the **eastern North Pacific tends to be warmer than average**, while during the **negative phase**, it tends to **be cooler than average**.
- The **positive phase** is characterised by cool SSTs north of Hawaii and warmer-than-normal sea surface temperatures along the western coast of North America.
- The **negative phase** is warm ocean temperatures in the Central North Pacific and cooler than normal waters along the western coast of North America.

## Pico Flares

- » Recently, extreme ultraviolet images of the Sun obtained by the **Extreme Ultraviolet Imager (EUI) instrument** onboard the **ESA/NASA Solar Orbiter** spacecraft have revealed numerous **small-scale jets within a coronal hole**.
- **Picoflare** is a type of solar jet flare blown out from the Sun's surface (from the apparent void created by the Coronal mass ejection) having an energy close to only **one trillionth of a solar flare**.
- They are **only a few hundred kilometres across**, have been observed to last only **20 to 100 seconds** and reach speeds of approximately **100 km/sec**.
- They could produce enough **high-temperature plasma** to sustain the solar wind and that the wind emerges from coronal holes as a **highly intermittent outflow at small scales**.



## Project Devika

- » **Project 'Devika'**, is in the final stages, and it will be soon dedicated to the nation by the Prime Minister.
- Built on the lines of '**Namami Ganga**', the project was launched in February 2019.
- It is **north India's first river rejuvenation project** implemented along the Devika River in **Jammu and Kashmir**.
- Under the project, **bathing "ghats"** (places) on the banks of the Devika River will be developed, the **encroachments removed**, and **natural water bodies restored**.
- Devika River is considered the **sister of the sacred river Ganga**, and it has great religious significance and **merges with River Ravi at Western Punjab**.

## Fujiwhara Effect

- » Recently, the Fujiwhara effect was observed when powerful winds tormented the Bay Area and other parts of Central and Southern California.
- When **two hurricanes** (or cyclones), **spinning in the same direction, are brought close together**, they begin 'an intense dance around their common centre'. This interaction is called the **Fujiwhara effect**.
- The storms must have formed **around the same time**, in the same ocean **region**, and have their **centres less than 1,400 km apart**. The storms must also be **spinning in the same direction**.
- In rare instances, the **two cyclones**, if they are intense enough, **may merge with one another, leading to the formation of a mega cyclone** capable of wreaking havoc along coastlines.
- Fujiwhara effect was identified by a Japanese meteorologist **Sakuhei Fujiwhara**.
- It was observed for the **first time over the western Pacific Ocean**, when typhoons **Marie and Kathy merged in 1964**.



# Science & Technology

## Namoh 108

- » The **CSIR-National Botanical Research Institute (CSIR-NBRI)** launched an extraordinary variety of lotus, named **Namoh 108**.
- Having **108 petals**, this is the only lotus variety in India to have had its **entire genome sequenced**.
- The original plant was brought from **Manipur** for comprehensive research
- The lotus is highly climate resilient, showcasing its ability to flower from **March to December**.



- » The **European Southern Observatory** released images of **galaxies forming a flower-like pattern due to gravitational lensing**.
- The image shows one **luminous mass encircled by four smaller points** resembling a flower with petals.
- The four petals are **images of a distant galaxy concealed behind the central orange galaxy** and the cross-like or flower-like pattern is known as the **Einstein Cross**.
- The **galaxy at the centre acts as a gravitational lens, bending the light emitted from the distant galaxy around it**.
- In **1915, Albert Einstein** introduced his **theory of general relativity**, which included a key prediction that the **massive objects such as stars or galaxies could deflect the path of light as it traversed through spacetime**.

**Gravitational lensing** occurs when **light from a distant object passes near a massive object in space, causing it to bend or curve**. When observed from Earth, this **bending alters the appearance or position of the distant object**, much like the effect seen through a magnifier.

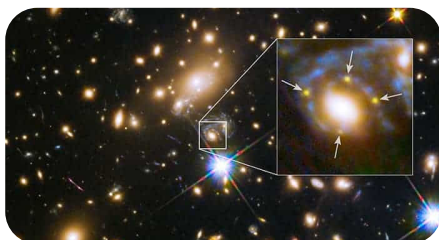
## Graphene – Aurora Programme

- » A ‘Graphene-Aurora programme’ was launched by the **Ministry of Electronics & Information Technology (MeitY)**, at Maker Village in Kerala.
- The program shall be implemented by **Digital University Kerala by setting up a India Graphene Engineering and Innovation Centre (I-GEIC)** with joint funding from **MeitY and Government of Kerala and industry partners**.
- It shall **nurture the deep and emerging Graphene technology and innovation ecosystem** that can guide, develop, implement and support the small and medium enterprises (SMEs) and startups to **commercialise developed graphene technologies**.

## Demon Particle

- » An elusive particle proposed in **1956** by theoretical physicist **David Pines** has just been discovered by a team of scientists of the University of Illinois.
- It is **not a particle in the traditional sense** like a proton or electron, but a **“composite” particle made up of a combination of electrons in a solid**.
- David Pines asserted that combinations of electrons in a solid could form a composite particle that is **massless, has no charge and does not interact with light** and he called this a **“demon” particle**.
- Physicists have speculated that **Pines’s demon plays an important role in the characteristics of many metals**. But they’ve never been able to confirm its existence until now.

## Einstein Cross





## Gene-Edited Mustard



- » Indian scientists have developed the **first ever low-pungent mustard that is pest and disease-resistant.**
- Mustard seeds have **high levels of glucosinolates**, a group of **sulphur and nitrogen-containing compounds** contributing to the characteristic **pungency of their oil and meal.**
- The glucosinolates also serve as **natural defenders, protecting the plant from pests and diseases.**
- Glucosinolates are synthesised in the leaves and pod walls of mustard plants and their **translocation and accumulation in the seeds** happens through the action of **glucosinolate transporter or GTR genes.**
- There are **12 such genes under two distinct classes of GTR1 and GTR2 with six copies each.**
- The scientists used **CRISPR/Cas9 editing** to create **mutations to the 10 target GTR genes of Varuna**, a high yielding Indian mustard variety.
- By doing this, their **encoded proteins, responsible for transport of the glucosinolates to the seeds, were rendered non-functional.**
- The seeds of the resultant **targeted genes-edited Varuna mustard variety** had **glucosinolate content well below the 30 ppm threshold, without compromising on the defence response.**

## Swathi Weapon Locating Radar Mountains (WLR-M)

- » Indian Army inducted the lighter and more compact version of the indigenously developed Weapon Locating Radar (WLR-M) called “Swathi Mountains.”
- The Swathi Mountains WLR is an **advanced electronically scanned phased array radar** developed by **Bharat Electronics Limited (BEL)** in Bengaluru.
- It is **specifically designed for operations in mountainous and high-altitude areas** and has high mobility and swift deployment capabilities.
- The WLR employs advanced signal processing techniques to **autonomously detect and track hostile artillery, mortars, and rocket launchers.**

## Bhu-Vision

- » Recently, a revolutionary IoT-based automated soil testing and agronomy advisory platform, Bhu-Vision was officially launched at AICRP (ICAR-IIRR), Hyderabad.
- Bhu-Vision, also known as **KRISHI-RASTAA Soil Testing System**, has been jointly developed by **ICAR-IIRR(Indian Council of Agricultural Research -Indian Institute of Rice Research)** and KrishiTantra.
- This system seamlessly **conducts 12 key soil parameter tests in just 30 minutes.**
- It **provides quick and accurate results directly to farmers and stakeholders** through a soil health card on their mobile devices.

## Metagenome Sequencing

- » Recently, scientists from the Nigerian Centre for Disease Control conducted a study utilising metagenomic sequencing for pathogen surveillance.
- Metagenome refers to the **collective genetic material of all the microorganisms** present in a particular environment.
- It **enables scientists to study genetic material from complex microorganism mixtures** in various environments, providing a comprehensive view of the microbial community.

- It has the ability to **uncover new species that have not yet been cultured** or characterised.

### National Automated Fingerprint Identification System (NAFIS)

- » India has inaugurated a **National Automated Fingerprint Identification System (NAFIS)**.
- **NAFIS is a central information repository by consolidating fingerprint data** across India conceptualised and **managed by the NCRB at the Central Fingerprint Bureau (CFPB)**.
- NAFIS assigns a **unique 10-digit National Fingerprint Number (NFN)** to each person arrested for a crime within 24 hours
- This **unique ID will be used for the person's lifetime**, and different crimes registered under different FIRs will be linked to the same NFN.
- NCRB enables law enforcement **agencies to upload, trace, and retrieve data from the database**.

### Maya Operating System

- » The **Defence Ministry** recently decided to drop the Microsoft operating system and go for a local one named Maya operating system.
- Maya Operating System is a **new Operating System (OS)** based on an open-source platform and has **interface and all functionality like Windows**.
- It **aims to prevent malware attacks and other cyberattacks** which have seen a steep increase.
- Currently, Maya is being **installed only in Defence Ministry systems** and not on computers connected to the networks of the three Services.

### Neerakshi

- » India recently launched '**Neerakshi**'- an **Autonomous Underwater Vehicle for mine detection**.
- "Neerakshi" meaning **"Eyes in the Water"** is **first of its kind** in the country and is expected to undergo user trials by the Indian Navy, Coast Guard, and Army before a commercial launch.

- The **2.1-meter-long cylindrical AUV**, weighing around 45 kg, can perform various tasks such as **mine detection, disposal, and underwater surveys**.
- It has an **endurance of four hours** and a depth of up to **300 metres**, making it a versatile tool for ensuring **coastal safety and protection**.
- It is a collaboration of Kolkata-based warshipmaker **Garden Reach Shipbuilders and Engineers (GRSE) Ltd** and MSME entity **Aerospace Engineering Private Ltd (AEPL)**.

### Cocoponics

- » Recently, the **Ministry of Agriculture and Farmer's Welfare** announced that ICAR-Indian Institute of Horticulture Research, Bengaluru (IIHR) has developed a variant of hydroponics called Cocoponics.
- **Hydroponics** is the technique of growing plants using a **water-based nutrient solution** rather than soil for **enhancing productivity and water use efficiency**.
- In cocoponics, the **growing medium is cocopeat** which is a **by-product of coconut processing** and has high water-holding capacity and good aeration.

### Akira Ransomware

- » Recently, **CERT- IN** issued a warning about the Akira ransomware which targets both **Windows and Linux devices**.
- It is designed to **encrypt data**, create a ransomware note and delete Windows Shadow Volume copies on affected devices.
- Attackers then **demand a ransom for decryption** and threaten to leak the stolen data on the dark web if their demands are not met.
- The ransomware gets its name due to its **ability to modify filenames of all encrypted files** by appending them with the **".akira" extension**.

Ransomware is a **type of malware** that hijacks computer data and then demands payment in order to restore it.



## Flood Watch app

- » Central Water Commission (CWC) launched the **FloodWatch app** which **predicts chances of floods and sends alert messages**.
- Forecasts and alert messages are provided in both **audio and written formats** (English or Hindi).
- Chances of floods can be forecasted **a day in advance**; a **7-day advisory** is also provided based on the flood probability at various water stations of CWC.
- **Colour-coded risk assessments** at the water stations are provided - **green (normal), yellow (above normal), orange (severe), red (extreme)**.
- The app also displays the **current water level**, the highest level historically attained, the danger level and warning level of the nearest water bodies.

## Agnibaan SubOrbital Technological Demonstrator (SOrTeD)

- » Recently, **AgniKul Cosmos**, a space tech start-up based in Chennai, set to launch their groundbreaking Agnibaan SubOrbital Technological Demonstrator (SOrTeD), the **world's first 3D-printed rocket** into space.
- **Agnibaan SOrTeD** is a single-stage launch vehicle powered by AgniKul's patented **Agnilet engine**, an entirely 3D-printed, single-piece, **6 kilonewton (kN) semi-cryogenic engine**.
- Unlike traditional **sounding rockets** that launch from guide rails, Agnibaan SOrTeD will **lift off vertically and follow a predetermined trajectory** to perform a precisely orchestrated set of manoeuvres during flight.
- Capable of carrying **payloads up to 100 kg** to an **altitude of 700 km** in five different configurations (plug-and-play design), the rocket stands **18 metres tall** and has a **mass of 14,000 kg**.

## Spike Non-Line of Sight (NLOS)

- » Recently, the Indian Air Force has received **Israel's Spike Non-Line of Sight (NLOS) anti-tank guided missiles**.

- It is a **fire-and-forget** anti-tank and anti-personnel missile with a **tandem-charge high-explosive warhead** developed by **Rafael Advanced Defense Systems**.
- Spike missiles are being used by the defence forces of **Israel and another 38 countries, including India** - and are available in **man-portable, vehicle-launched, and helicopter-launched variants**.
- The missile uses an **electro-optical seeker** coupled to a data link that enables the launch operator to **control the missile in flight** to attack different parts of a tank or select another target, if not abort the strike.
- With a **range of 30km**, it helps in enhancing the IAF's ability to **engage hidden targets behind mountains or hills**.

## Respiratory syncytial virus (RSV)

- » Recently, the United States of America's Food and Drug Administration (FDA) approved the **first respiratory syncytial virus (RSV) vaccine** for use in women during pregnancy to protect the baby.
- The approval allows the vaccine to be given to **women 32 to 36 weeks into pregnancy** for the prevention of lower respiratory tract infection and severe disease in **infants until they are six months old**.
- RSV is a **common respiratory virus** and one of the most frequent causes of childhood illness.
- Even though children in **2-6 years are commonly infected**, premature infants, babies **younger than 6 months old**, people **above age 65** and people who have a **compromised immune system** are more prone to the diseases.
- The virus is **highly contagious** and spreads via **coughing, sneezing** or via **direct contact** of objects.
- There is **no reliable medication** and severe infection leads to **pneumonia and bronchiolitis**.

## Project 17A



- » President Droupadi Murmu launched INS Vindhyagiri, the last in the series of three Project 17A (Alpha) frigates.
- Project 17 Alpha frigates (P-17A) were launched by the Indian Navy in 2019, as the **follow-on class of the Project 17 (Shivalik Class) Frigates**, with improved stealth features, advanced weapons and sensors and platform management systems.
- They are constructed by **two companies - Mazagon Dock Shipbuilders (MDL) and Garden Reach Shipbuilders & Engineers (GRSE)**.
- The five other ships : **INS Nilgiri, Udaygiri, Himgiri, Taragiri, and Dunagiri** – were launched between **2019 and 2022**.

## Trans Lunar Injection (TLI)

- » ISRO performed the Trans Lunar Injection (TLI) to slingshot Chandrayaan 3 towards the moon.
- Trans Lunar Injection is the process that **propels a spacecraft from Earth's orbit towards the Moon**.
- The TLI is performed when the **spacecraft is at a specific point in its orbit** known as the **'perigee' or the closest point to Earth**.
- The spacecraft engines are **fired to increase its velocity**, allowing it to **break free from Earth's gravity** and enter a trajectory towards the Moon.
- TLI is a critical milestone in space explorations, enabling missions to reach the Moon & beyond.

## Indian Made MRI Scanner

- » The 1st India-made MRI scanner has been developed in Bengaluru for clinical work.

- The **indigenously** developed machine is developed under the **National Biopharma Mission**, by **Voxelgrids Innovations Pvt Ltd**.
- **MRI Scanner** is a **medical imaging method** that **uses powerful magnets and radio waves to capture** detailed images of the body's internal structures.
- It is **characterised by several innovations**, including avoiding reliance on scarcely **available liquid helium**, **bottom-up software design**, and **customised hardware**.
- **In place of liquid helium**, it uses the far more accessible, less expensive **liquid nitrogen to swiftly chill the magnets**.

## Side Channel Attack (SCA)

- » A research paper titled **"A Practical Deep Learning-Based Acoustic Side Channel Attack on Keyboards"**, revealed that Artificial Intelligence (AI) can be used to decode passwords by analysing the sound produced by keystrokes.
- Side Channel Attack (SCA) is a **security exploit** that attempts to **extract secrets from a chip or a system by measuring or analysing various physical parameters**.
- SCA can be performed using a **collection of signals emitted by devices**, including electromagnetic waves, power consumption, mobile sensors as well as sound from keyboards and printers to target devices.
- Example: **Van Eck phreaking attack**, monitored the electromagnetic field (EMF) radiation emitted by a computer screen to view information before it is encrypted.
- In **Acoustic Side Channel Attacks (ASCA)** the **sound of clicks** generated by a **keyboard** is used to **analyse keystrokes and interpret** what is being typed to leak sensitive information.

## Nabh Mitra

- » ISRO-developed device for fishers' safety successfully tested in Kerala.
- **Nabh Mitra**, **developed by ISRO- Space Application Centre for the safety of fishermen**.
- It is a **satellite based communication system** that **enables 2 way messaging services** from and to the sea.



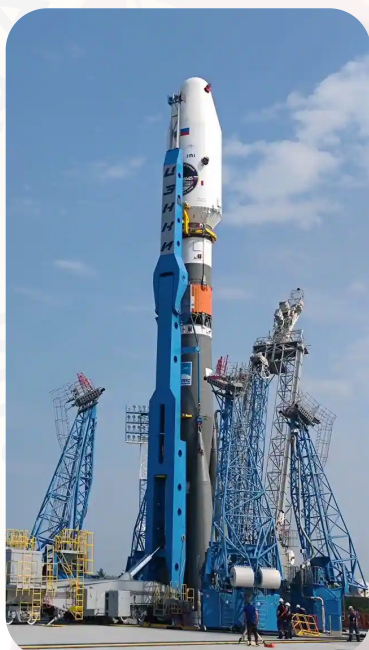
- It will also **provide weather and cyclone warnings in the local language**, send distress messages to the authorities and **identify fishing fields**.

## SAMUDRA App

- Recently, Indian National Centre for Ocean Information Services (INCOIS) SAMUDRA for seafarers and the fishing community.
- Smart Access to Marine Users for Ocean Data Resources and Advisories (SAMUDRA)** application offers comprehensive **information on all ocean related services**.
- It helps **navigation with real-time updates and critical alerts** on oceanic disasters
- It is currently **serving in English**, soon eight coastal languages are proposed to be included soon.

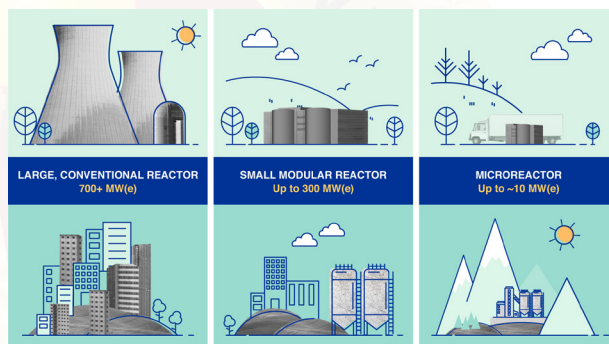
## Luna 25 mission

- Russia's Luna-25 has crashed on the Moon's surface.
- Luna-25 is Russia's **first lunar landing spacecraft** launched on August 11 2023, reviving **Russia's lunar exploration programme nearly after 50 years**.
- Launched from the Vostochny cosmodrome, it aimed to **explore the moon's south pole region**.
- It **attempted to modify** its circular orbit around the moon to a **lower pre-landing orbit**, it **applied more thrust than required**, sending it careening to the surface.



## Small Modular Reactors (SMRs)

- Recently, **NITI Aayog member** and scientist V. K. Saraswat suggested that the government should focus on setting up small modular reactors.
  - SMRs are **advanced nuclear reactors** that have a **power capacity of up to 300 MW(e)** per unit, which is about **one-third** of the generating capacity of traditional nuclear power reactors.
- Small – physically a fraction of the size of a conventional nuclear power reactor.
- Modular – making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
- Reactors – harnessing nuclear fission to generate heat to produce energy.
- SMRs can generate less electricity when demand is down and are particularly useful for power generation in remote locations.



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## Miscellaneous

### Scrub Typhus

- » As per reports, at least 5 people have succumbed to scrub typhus and more than 700 people have tested positive.
- **Scrub typhus** is an emerging **infectious disease** with seasonal flare caused by the bacterium **Orientia tsutsugamushi**, which is **transmitted to humans through the bite of infected mites** found in areas with heavy vegetation.
- It is commonly found in the **Asia-Pacific region, including India** and is **more prominent during rains and in hilly areas**.
- Scrub typhus has significant morbidity and in some cases, mortality if not diagnosed and treated promptly.
- The symptoms include **fever, headache, muscle pain, rashes and swollen lymph nodes**.
- The characteristic feature of scrub typhus is an **eschar** (a type of necrotic tissue that can develop on severe wounds), a **dark, scab-like lesion**.

### India Stack

- » The **Ministry of Electronics and IT (MeitY) and the Ministry of Information and Communication Technology (MIT)** of **Papua New Guinea** signed a memorandum of understanding (MoU) for sharing India Stack.
- **India Stack** is a **set of Application Programming Interface (APIs)** that allows **governments, businesses, startups and developers to utilise a unique digital infrastructure**.
- It comprises several key elements like **Aadhaar (unique digital ID), e-KYC (digital verification), e-Sign (digital signatures), UPI (unified payment interface), and Account Aggregator framework (data sharing)**.

**Application Programming Interfaces (APIs)** are a set of mechanisms that enable **two software components to talk or communicate with each other** by using certain protocols and definitions.

### High Price Day Ahead Market (HP-DAM)

- » Recently, the **Ministry of Power** launched the **High Price Day Ahead Market (HP-DAM)**.
- **Day Ahead Market** is a physical electricity trading market where **power is delivered within 24 hours** of the next day starting from midnight.
- They are traded in **15 minute time blocks** and the prices and the amount of electricity is fixed through the **auction bidding process**.

### Technology Development Fund (TDF) Scheme

- » The **Defence Ministry** recently said that the Technology Development Fund (TDF) Scheme launched in 2016 has so far supported 41 MSMEs and 20 startups.
- TDF Scheme has been established to promote **self-reliance in defence technology among MSMEs and Start-ups** as a part of the **Make in India** initiative.
- It is a programme of the Ministry of Defence executed by the **Defence Research and Development Organisation (DRDO)**
- It aims to provide **Grant in Aid to Indian industries** and project cost of up to **Rs.10 Cr** will be considered for funding.

### Mera bill Mera Adhikar

- » The **Government of India**, in association with **State Governments**, has launched an 'GST Invoice incentive Scheme' by the name 'Mera Bill Mera Adhikaar' to encourage the culture of customers asking for invoices/bills for all purchases.
- Any registered user can upload in the app upto 25 GST invoices in a month with a **minimum purchase value** for Rs 200 and win cash rewards based on a lottery system.
- A **monthly and quarterly draw of lots** will be made, and winners will be eligible for cash reward prizes beginning from **Rs 10,000 to up to Rs 1 crore**.
- The scheme aims to **promote tax compliance** and encourage citizen participation against **tax evasion**.



- The central app is modelled on the 'Lucky App' developed by Digital University of Kerala (DUK) for the state GST Department.

### Promotion of Research and Innovation in Pharma MedTech Sector (PRIP)

- » The Union Cabinet recently approved the Promotion of Research & Innovation in Pharma-MedTech sector (PRIP) scheme.
- The objective of the PRIP scheme is to transform the Indian Pharma MedTech sector from cost-based competitiveness to innovation-based growth by strengthening the research infrastructure in the country.
- Rs 5,000 crore will be spent in five years (2024-28) under the PRIP scheme, and companies will be given incentives for research.

#### It focuses on two components:

1. **Strengthening research infrastructure through Centres of Excellence (CoE)** in the seven existing National Institutes of Pharmaceutical Education and Research (NIPERs).
2. **Government engagement with nine established pharmaceutical companies** with an outlay of Rs. 125 crores over five years.

### DIR-V Program

- » Recently, the Union Minister of Electronics & IT addressed the Digital India RISC-V (DIR-V) Symposium organised by IIT Madras in Chennai.
- The **Ministry of Electronics & IT, Government of India** launched the **Digital India RISC-V Microprocessor (DIR-V) Program**.
- **DIR-V Program** is a forward-looking initiative that aims to uplift India's semiconductor ecosystem.
- It aims to promote indigenous innovation in the field of microprocessors, laying the foundation for self-reliance.
- It emphasises three key principles: **innovation, functionality, and performance, shaping its direction for the future.**

### Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA) scheme

- » **Fourteen States and Union Territories** have not yet signed a Memorandum of Understanding (MoU) with the Union Education Ministry to implement the **National Education Policy (NEP)** as part of the PM-USHA scheme.
- The **Ministry of Education** introduced **PM-USHA** in **2023** to improve the quality of higher education in State universities.
- (PM-USHA replaced the **Rashtriya Uchchatar Shiksha Abhiyan (RUSA)** in the light of the **National Education Policy (2020)**).
- It is funded through the **Ministry of Education (MoE)** with contributions from the **State governments and Union Territories (UTs)**.
- Prioritised focus districts shall be identified by the concerned States/UTs considering the lack of access to government colleges and the proportion of disadvantaged categories such as SC/STs/OBCs/Women and remoteness/aspirational status of districts.

## INTERVIEW MENTORSHIP PROGRAM



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Shri TKA Nair (IAS Rtd, Former Principal Secretary to the Prime Minister of India).



Shri Sanjay Kumar Srivastava (IAS Rtd, Former Secretary, Ministry of Coal) etc.



## Places in News

### Fukushima Water Dump

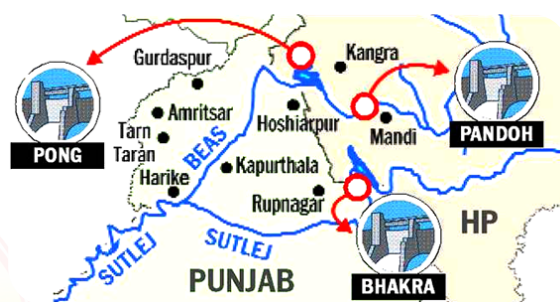


- » The **earthquake and the subsequent tsunami of 2011** in Japan caused significant damage to the **Fukushima Daiichi Nuclear power plant**.
- Since then, the workers at the now-defunct plant have been **cooling the reactors by using water, which becomes contaminated**. All the radioactive water is **stored in more than 1000 storage tanks at the site**.
- The water is treated and stored through a filtering system called **Advanced Liquid Processing System (ALPS)** that removes most of the radioactives except tritium.
- As the treated water reached its full capacity, **Japan started releasing water to the Pacific Ocean**.

#### Concerns regarding the water dump

- 🗨️ **Impact on the ecosystem**- Pacific Ocean with over 50% of the world's oxygen and diversity of resources will be affected.
- 🗨️ **Transboundary implications**- Concerns have been raised by neighbouring regions like South Korea, Taiwan, China, etc.
- 🗨️ Contamination of water will **affect the economy and public health**, as **fishing** is an important activity in these regions.

### Pong Dam



- » Several villages within the **Beas River** catchment area in **Punjab** have been submerged following the release of a substantial amount of water from the Pong Dam.
- The **Pong Dam**, also known as the **Beas Dam**, is an **earth-fill embankment dam on the Beas River** in the state of **Himachal Pradesh**.
- The purpose of the dam is **water storage for irrigation and hydroelectric power generation**.
- The construction of the dam began in the year **1961** and was completed in **1974** and at that time of its completion, **it was the tallest of its type in the country**.
- The lake created by the dam, **Maharana Pratap Sagar**, became a renowned **bird sanctuary**.

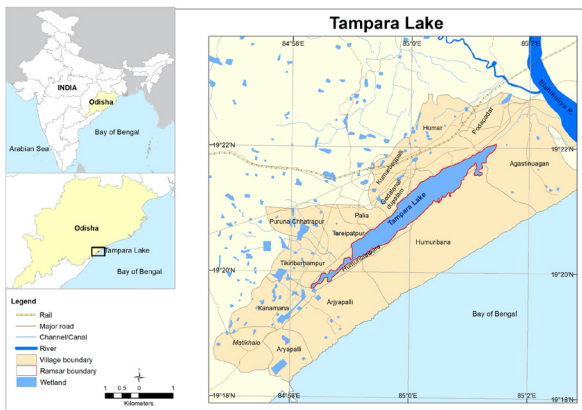
### Great Barrier Reef

- » A UNESCO heritage committee asked the Australian government to submit a **progress report on the threats faced by the Great Barrier Reef** due to global warming and climate change **by February 2024**



- It is the **world's most extensive and spectacular coral reef ecosystem** composed of over **2,900 individual reefs and 900 islands**.
- It lies in the **Pacific Ocean** off the **northeastern coast of Queensland, Australia**, in the **Coral Sea** and was designated as a **UNESCO World Heritage Site in 1981**.

## Tampara Lake



- » Recently, the National Green Tribunal, Eastern Zone, has directed the Odisha government not to go ahead with 'illegal' construction in and around Tampara Lake.
- **Tampara Lake** is one of the largest freshwater lakes in the **State of Odisha**.
- It supports at least 60 species of birds, 46 species of fishes, at least 48 species of phytoplanktons, and more than seven species of terrestrial plants and macrophytes.
- It is already placed in the **Wetland Atlas prepared by the Ministry of Environment, Forest and Climate Change** in 2010.

## Sulina Channel

- The new trade route through **Sulina Channel** connects major **Ukrainian ports on the river to the Black Sea**, lying completely **within the borders of Romania**.
- The Sulina Channel is situated in the **eastern part of Romania**, near the town of **Sulina**.
- It connects **the Danube River to the Black Sea**, providing a direct passage for ships travelling to and from the river and the sea.
- It is situated at the **mouth of the Danube**. **This channel is a distributary of the Danube River with a total length of 71.7 km.**



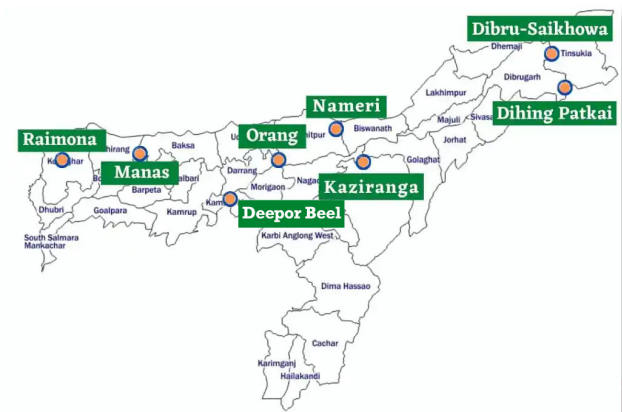
## Panama Canal

- » A **severe drought** in Panama is causing extensive delays for cargo ships transiting the Panama Canal, a vital route connecting almost **2,000 ports across 170 countries**.



- It is a **80km constructed waterway** that connects the **Atlantic and Pacific oceans across the Isthmus of Panama**.
- Built by the United States between 1904 and 1914, it is one of the two most strategic artificial waterways in the world, the other being the **Suez Canal**.
- Currently, owned and administered by the **Republic of Panama** since the oversight of the Canal was transferred from the **United States to Panama in 1999**.

## Deepor Beel



- » Recent reports show that locals in Assam are taking initiatives to save the dying Deepor Beel Lake.
- **Simang**, which is a **collective initiative by six women** from Keotpara has successfully transformed the **invasive weed, water hyacinths into beautiful artefacts and yoga mats**.



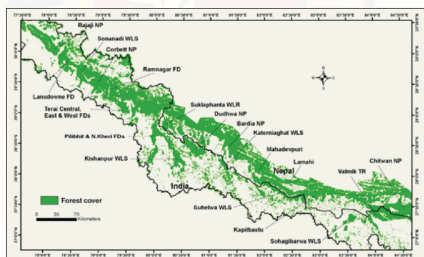
- “**Kumbhi Kagaz**” is one such initiative, where locals of Keotpara produce **100% biodegradable, chemical-free handmade papers** from water hyacinths, enhancing the **wetland’s condition and supporting alternative livelihoods**.
- Deepor Beel, the **erstwhile water channel of River Brahmaputra**, is a **permanent freshwater lake** and is **Assam’s only Ramsar site**.

## 2nd Space Port in India

- » The Indian Space Research Organisation (ISRO) is planning to set up its **second spaceport at Kulasekarapattinam** in **Thoothukudi district of Tamil Nadu**.
- The **spaceport will be used for launching the Small Satellite Launch Vehicles (SSLV)** developed by the **Indian Space Research Organisation (ISRO)**, which are designed to **offer low-cost and flexible access** to space for small satellites.
- **ISRO’s first spaceport** is the Satish Dhawan Space Centre (SDSC), is located in Sriharikota, about 100 km north of Chennai, in the state of Andhra Pradesh.

## Terai-Arc Landscape (TAL)

- The Terai Arc Landscape (TAL) is an **810 km stretch between the river Yamuna in the west and the river Bhagmati in the east**, comprising the Shivalik hills, the adjoining bhabhar areas and the Terai flood plains.
- In total, the landscape has 13 Protected Areas, nine in India and four in Nepal, covering a total area of 49,500 km<sup>2</sup>, of which 30,000km<sup>2</sup> lies in India.
- The landscape comprises most well known protected areas of India: **Corbett Tiger Reserve, Rajaji National Park, Dudhwa Tiger Reserve, etc.**



## Species in News

### Bhagwa Pomegranate

- » **Agricultural and Processed Food Products Export Development Authority (APEDA)** has facilitated the export of the first trial shipment of fresh pomegranate to the USA through air route.



- Because of its **high antioxidant content and super fruit characteristics**, **Bhagwa pomegranate** from Maharashtra has a substantial demand in the overseas markets.
- The **Solapur district in Maharashtra** contributes almost **50% of the pomegranate export from the country**.

### Red Sand Boa



- » A report by the Wildlife Conservation Society (WCS)-India has pointed out 172 incidents of seizures of red sand boa between the years 2016-2021.

#### Conservation Status

IUCN: **Near Threatened**

Wildlife (Protection) Act, 1972: **Schedule IV**

CITES: **Appendix II**



- Red Sand Boa (*Eryx johnii*) is a **species in the subfamily Erycinae of the family Boidae endemic to Iran, Pakistan, and India.**
- It is commonly called the **Indian Sand Boa** is a **non-venomous species** found throughout the **dry parts of the Indian subcontinent.**
- Unlike most snakes, the **tail is almost as thick as the body** & gives the reptile the appearance of being “**double-headed**”.

## Red Sanders



- » Recently, 48 smuggling operatives were arrested and red sanders logs worth ₹2 crore seized in Andhra Pradesh.

### Conservation Status:

IUCN Red List: **Endangered**

CITES: **Appendix II**

Wildlife (Protection) Act 1972: **Schedule IV**

- **Red Sanders** is a **flora species** that are **endemic** to a distinct tract of forests in the **Eastern Ghats** region of Andhra Pradesh.
- It usually grows in **rocky, degraded and fallow lands** with **Red Soil** and a **hot and dry climate.**
- Known for their **rich hue and therapeutic properties**, are high in demand across **Asia, particularly in China and Japan** leading to illicit trading and smuggling.

## Hangul



- » After two years, the unique **Kashmir stag (Hangul)**, the **state animal of Jammu and Kashmir**, has again shown a marginal increase in its population.
- Hangul which is a **subspecies of Central Asian red deer** is **endemic to Kashmir** and surrounding areas.
- Once widely distributed in the mountains of Kashmir and parts of the Chamba district in neighbouring Himachal Pradesh, they are now **restricted to Dachigam National Park.**

### Conservation status

IUCN: **Critically Endangered**

CITES : **Appendix I**

## Vaquita porpoise



- » Recently, the **International Whaling Commission (IWC)** issued its **first 'extinction alert'** on the **vaquita porpoise.**
- It is the **world's smallest porpoise native to Mexico's Gulf of California.**
- It is the only **species of porpoise family found in warm waters**, and has a larger dorsal fin allowing for **extra body heat to dissipate.**
- Vaquita's population has dwindled to **just nine or ten individuals** due to **illegal gill net fishing**, which aims to catch the **totoaba fish** for its **valuable bladder** in the **Asian market.**
- These are the **world's smallest cetaceans** and **distant relatives of dolphins.**

### Conservation status

IUCN: **Critically Endangered**

CITES : **Appendix I**

## White bellied sea eagle



- » White-bellied sea eagles in India have begun making their nests on power towers holding **high-tension wires** similar to their counterparts in **Australia and Thailand**.
- Experts believe this adaptation is **due to disappearance of natural sites** like **tall trees**
- They are the largest **diurnal monogamous bird of prey** and mainly feed on **sea snakes and fish**.
- They exhibit **sexual dimorphism**, with females being slightly larger than males.

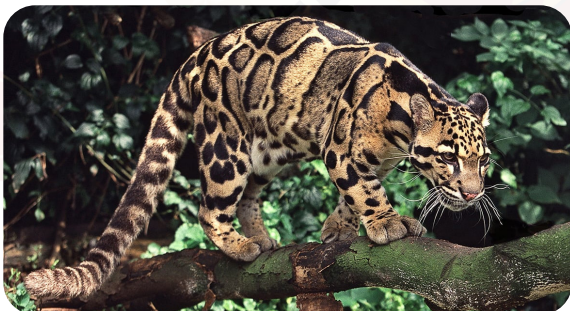
### Habitat-

- ☞ Occasionally seen in inland waters along tidal rivers and in freshwater lakes.
- ☞ Resides in the **same localities for years** and generally builds nests in tall trees near the seacoast, tidal creeks, and estuaries

### Conservation Status:

IUCN: **Least Concern**

## Clouded Leopard



- » Recently, ecologists observed that the **Clouded leopard does not follow any specific pattern of operating** in a certain space, unlike other carnivores. They seemed to go wherever they pleased without worrying about other predators.

- The Clouded Leopard is a **medium-sized wild cat** found along the regions of the **Himalayas and SouthEast Asian Nations**.
- Its **pale yellow to dark brown fur has distinctive markings**, which look like dark clouds in the sky. Due to this feature, **it is named 'Clouded Leopard.'**
- It has the **largest canines in proportion to its skull** size among all cat species.
- It also has **rotating rear ankles** that enable it to climb down head first from trees, unlike the other felines.
- It is the **State animal of Meghalaya**.

### Conservation status

IUCN: **Vulnerable**

Wildlife Protection Act, 1972: **Schedule I**

CITES: **Appendix I**

## Indian Flying Fox Bat

- » A new study found that India's largest species of bats, Indian Flying Fox bat spends 7% of its day-roosting time being environmentally vigilant.



### Conservation Status

IUCN: **Least concern**

Wildlife (Protection) Act of 1972: **Schedule II**

- Indian Flying Fox Bat is a species of **flying fox native to the Indian subcontinent**.
- It is **one of the largest bats in the world**.
- These bats are endemic to South Central Asia, found from Pakistan and China to the Maldives Islands.
- It is so called due to **its unique, fox-like appearance: reddish-brown coat**, characteristically long snout as well as large eyes.