

FORTUNE Prelims Precise

JANUARY 2023



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FORTUNE IAS

Toppers in Top 100



Rank 6

Meera K
2021



Rank 15

Sidharth B
2017



Rank 21

Dilip K Kainikkara
2022



Rank 28

Hamna Mariyam
2017



Rank 29

Sreelakshmi Ram
2019



Rank 33

Anand
2016



Rank 36

Arya V M
2023



Rank 45

Safna Nazarudeen
2020



Rank 49

Renjina Mary V
2019



Rank 55

Dr. Arun S Nair
2020



Rank 57

Alfred O V
2022



Rank 58

Hari Kallikkat
2018



Rank 62

Aparna M B
2021



Rank 63

Dheena Dastagir
2021



Rank 66

Akhil V Menon
2022



Rank 66

Arjun Mohan
2019



Rank 81

Malini S
2023



Rank 92

Devi Nandanda
2020



Rank 99

Archana P P
2020



Rank 100

Kiran P B
2022

History

Savitri Bai Phule

- Savitri Bai Phule was a **social reformer** of the **19th century** who worked in the field of women education.
- The 187th birth anniversary of Savitri Bai Phule was celebrated in January 2023. She was born on **3rd January 1831**.

Major Contribution

- **Savitri Bai Phule, Jyotirao Phule and Fatima Sheikh** opened a **school for women** in 1848 which is considered as the **country's first school for women started by Indians**.
- **Fatima Sheikh** was a pioneering teacher, anti-caste activist, a proponent of girl's education and a social reformer of the 19th century.
- **Balhatya Pratibandhak Griha** (Home for prevention of infanticide) was started for pregnant widows facing discrimination.
- Set up the **Satyashodhak Samaj** (Truth seekers society), a platform open to all with the sole aim of bringing social equity.
- Started **Mahila Seva Mandal** to raise awareness about women's rights.

Literary Works

- Published collections of poems, called **Kavya Phule** in 1854 and **Bavan Kashi Subodh Ratnakar** in 1892.

Charaideo Maidams

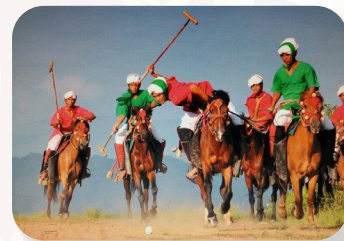


- » Union Government **nominated** Charaideo Maidams **site for the prestigious UNESCO World Heritage Site from North East**.
- They are known as **“Pyramids of Assam”** representing the **mound burial tradition of the Tai Ahom community**.
- Charaideo was the **original capital** of the Ahom Kings built by the founder - **Chaolung Sukhapa** in 1229 CE.
- It was earlier known as **Che-Tam-Doi-Phi** meaning **“city of the sacred hill”**.

Architectural Features

- **Wood** was the primary material for construction of mounds during the early period (13th CE to 17 CE), later from 18th CE, **stone and burnt bricks** were used.
- It comprises a massive **underground vault with chambers** covered by a heap of earthen mound which appears externally as a **hemispherical mound**.
- There is an **octagonal dwarf** wall enclosing the whole maidam and a small open pavilion known as **chow-chali** at the top of the mound.

Sagol Kangjei



- » A 122 foot tall statue of a Sagol Kangjei player was unveiled in Imphal.
- Sagol Kangjei is a **traditional sport** from the Indian state of **Manipur**. It is often considered the origin of the modern game of polo.
- **Ningthou Kanba**, a ruler of ancient Kangleipak is believed to be the founder of it.
- **Sagol** means pony/horse, **Kang** means a ball or round object, and **jei** is a stick used for hitting.
- Unlike traditional polo, Manipuri polo **does not have specific team goals**, and **goalposts**. Instead to score a goal the ball must cross the goal lines which determine the end of the two

boundaries of the rectangular field.

- The players ride horses, specifically the **Manipur Ponies**, one of the equine breeds of India.

Ottan Thullal



- » A renowned folk artist has expressed his angst over the fading participation of students in Ottanthullal artform.
- Ottanthullal (or Thullal, in short) is an **18th century recite-and-dance art-form** of Kerala famous for its **humor and social satire** introduced by **Kunchan Nambiar**.
- It's also influenced by **principles of Natyashastra**.
- The costume and makeup of the performer are **similar to that of a Kathakali** artist, and the **Thullal performer** is supported by a singer who repeats the verses and is accompanied by an **orchestra of mridangam or thoppimaddalam (percussions) and cymbals**.
- It has spawned into three separate versions which include- **Ottanthullal, Seethankan thullal and Parayan thullal**.

Paigah Tombs



- » The **necropolis** (a large, designed cemetery with elaborate tomb monuments) of noblemen dating from the **Asaf Jahi era** known as **Paigah Tombs** complex in Hyderabad is set to be restored with funding by the U.S. Ambassadors

Fund for Cultural Preservation.

- **Paigah Tombs or Maqbara Shams al-Umara**, are the 200 years old tombs belonging to the nobility of the Paigah family, the loyalists of the Nizams.
- These tombs are beautifully decorated with **stucco works**, which is one of the finest example of **Indo Saracenic architecture**. (blend of Mughal, Greek, Persian, Asaf Jahi, Rajasthani and Deccani style of architecture)

Anubhava Mantapa

- » A statue of Basaveshwara is being constructed on the premises Karnataka legislative assembly.
- The Anubhava Mantapa, set up by 12th-century reformer Basaveshwara is considered to be the **"first Parliament of the world"**.
- It was a common forum for all to discuss **socio, economic and political** issues including **personal, religious and spiritual matters**.
- **Basaveshwara (1134-1168)** is the founder of the **Virashaivism (Lingayats)** tradition.
- **Basaveshwara** Indian philosopher, bhakthi saint and a social reformer who attempted to create a **casteless society** and fought against caste and religious discrimination.

His noble principles

There is only one God.

Complete surrender to God in devotion.

Compassion is the root of all religions.

National Mission on Pilgrimage Rejuvenation & Spiritual Heritage Augmentation (PRASHAD) Scheme

- **Rameswaram** - Tamil Nadu, **Ramappa temple**-Telangana & **Chamundeshwari temple**-Karnataka were added under the PRASHAD scheme
- The **'National Mission on Pilgrimage Rejuvenation and Spiritual Augmentation**

Drive' (PRASAD) was launched by the **Ministry of Tourism** in the 2014-15 and later renamed as **National Mission on Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASHAD)** in 2017.

- The **Central Government** provides **100% funding** for the project and are implemented through **agencies identified by the respective State/ Union Territory Government**.
- **Central Financial Assistance (CFA)** is provided to State Governments for promoting tourism at identified destinations.

Amrit Udyan

- » Recently the **Mughal Gardens**, which is a cluster of 15 gardens at the **Rashtrapati Bhavan** have been renamed as Amrit Udyan.
- It was **designed by Edwin Lutyens** and his design was influenced by the **Persian Charbagh style**.
- Individual gardens within Rashtrapati Bhavan like Herbal Garden, Musical Garden and Spiritual Garden will retain their names.

Monuments of National Importance(MNIs)

- » The **Economic Advisory Council** to the Prime Minister released a report titled "**Monuments of National Importance: The Urgent Need for Rationalization**".
- Monuments of National Importance are **designated by the Archaeological Survey of India** based on the requirements like Monument or Archaeological site **not less than 100 years old**, qualified under the **definition of Ancient Monuments and Archaeological Sites & Remains Act 1958** and **no major public objections**, etc.
- India currently has 3,695 MNIs under the protection of ASI, with **Uttar Pradesh** having the **largest numbers**.

Monument Mitra Scheme

- » In January 2023, the Scheme was revamped to **hand over around 1000 monuments** under the control of **Archaeological Survey of India** to the **private sector** based on the **Corporate Social Responsibility (CSR)** model.
- The Monument Mitra Scheme was launched in **September 2017** under the **Ministry of Tourism** earlier and then **transferred to the Ministry of Culture**.
- The scheme aimed at ensuring **quality and inclusive provision of amenities and facilities** across **heritage, natural and tourist sites** through the active participation of private and public sector organisations and individuals.
- **Monument Mitra** is the term coined for an **entity partnering with the government** under the **Adopt a Heritage Project**.

VIRAASAT

- » The **Ministry of Textiles** launched the **2nd phase of Sari Festival "VIRAASAT"**- Celebrating 75 handwoven Sarees of India in New Delhi.
- It had **90 participants** from different parts of the country including varieties of Saris like **Chikan embroidered Sarees - Uttar Pradesh, Kalamkari printed Sarees - Andhra Pradesh, Ajrakh prints - Gujarat** etc.

Ramacharitamanas

- » Bihar Education Minister Chandra Shekhar, stoked a controversy after he claimed that Ramcharitmanas, an epic Hindu religious book based on Ramayana, "**spreads hatred in the society**".
- Ramcharitamanas is a **poem** written by the **16th century poet Tulsidas** in **Awadhi dialect**.
- Its divided into **seven chapters (Kand)** that tells the story of Lord Ram from birth to his becoming King of Ayodhya.
- It's considered as **one of the holiest book** of the **Indo-Gangetic region** and among the most read holy books.

Project Ellora

- » Researchers at Microsoft research lab have been working toward creating a **digital ecosystem** for languages which are **not adequately represented**.
- Currently, the researchers are working with **Mundari, Gondi and Idu Mishmi** languages.
- To bring rare Indian languages online, **Microsoft** launched Project Ellora or **Enabling low resource languages** in 2015.
- Primary objective is to **preserve the language**, so that language users can participate and interact in the digital world freely.

Mundari

- It belongs to the **Austro-asiatic language** family and is spoken by the Munda tribes of Jharkhand, Odisha and West Bengal.
- It has a written script but there is **no digital representation**.

Idu Mishmi

- It's considered an **endangered language**.
- Primarily spoken by Mishmi people in **Dibang valley** of Arunachal Pradesh.

Gondi Language

- It's a **southern Dravidian language**.
- It's the only language beside Urdu to have a script which is **written from right to left**.

Uttaramerur inscription



- » Recently, PM Modi in Mann ki Baat mentioned about the Uttaramerur inscription in **Kanchipuram, Tamil Nadu**.
- It is a **1,100 years old inscription** attributed during the reign of **Chola king Parantaka I**.

- Inscriptions are found on the **walls of Vaikunda Perumal Temple** which was built by **Pallava king Nandivarman II**.
- The inscription contains details of **self-governance, Kudavolai Election System** and functioning of **Sabha**.
- The inscriptions also mention about Sabha was an assembly exclusively of brahmins and had specialised committees.

Purana Qila (Old Fort)

- » The recent excavations by **Archaeological Survey of India (ASI)** at Purana Qila revealed a **continuous history spanning over 2500 years**.
- Purana Qila is one of the **oldest forts in Delhi** built on the **banks of river Yamuna**.
- Purana Qila and its environs flourished as the **"sixth city of Delhi"**.
- The **present citadel at Purana Qila** started its construction in the reign of **Humayun** and was completed by **Sher Shah Suri**.

Architecture



It is **rectangular in shape** and spread over an area of 1.5 km.

All the three gates- **Bara Darwaza, Humayun Gate and Talaqqi Gate** are **double storeyed** and consist of huge **semi circular bastions** flanking either of their sides.

The **eastern and western walls** of the **Qila** are the **tallest** which are specifically designed for **safeguarding the kings**.

The **unique features of Indo-Islamic architecture** like horseshoe shaped arches, bracketed openings, marble inlay, carvings etc are very prominent here.

Thiruvalluvar

- » **Thiruvalluvar Day** is celebrated annually on **January 15th or 16th** in **Tamil Nadu** as part of **Pongal** celebration.
- Thiruvalluvar, also known as **Valluvar** was a great **Sangam poet and Philosopher**.
- The period when he lived is debated, as is his religious identity.
- **Tirukkural**, also called **Kural** is a **classic Tamil text** written by Thiruvalluvar which had an **immense influence on Tamil culture and life**.
- Tirukkural is a **collection of 1330 couplets (kurals)** that are **divided into 133 sections of 10 couplets each**.

Votive Stupas



- » The **Archeological Survey of India (ASI)** has discovered two, 1200 year old votive stupas in Sarai Tila mound in **“Nalanda Mahavihara” (Bihar)** premises. **Both were carved in stone and depict buddha figurines**.
- Beginning in the **7th century CE** in India, small miniature terracotta stupas became popular as **votive offerings**.
- These are forms of the stupas, with their distinctive **domelike drum**, usually used for religious purposes.

Polity

Pradhan Mantri National Apprenticeship Mela (PMNAM)

- » **PMNAM** are hosted **every month** wherein selected individuals receive a monthly stipend in accordance with the government criteria.
- PMNAM is being organised by the **Ministry of Skill Development and Entrepreneurship** as part of the **Skill India Mission** to boost career opportunities and practical training among the youth.
- To be eligible to apply, the students must have a **5th-12th grade pass certificate, a skill training certificate, an ITI diploma or a graduate degree**.
- It aims to raise apprenticeship opportunities in India to **60 lakhs by 2026**.

Village Defence Committees

- » The VDCs were **first formed in the mid-1990s** to defend people against militant attacks in Jammu and Kashmir. It has now been **renamed as the “Village Defence Guards Scheme (VDG)”** recently.
- It will be **set up in vulnerable areas of J&K** and was approved by the **Union Ministry of Home Affairs**.
- The VDGs will function **under the direction of the Superintendent of Police (SP) /Senior Superintendent of Police (SSP)** of the district concerned.
- The scheme organizes a small group of volunteer armed civilians classified into **two categories**: those with a valid arms license and weapons given by the Jammu and Kashmir Police and those with a valid license and weapons or willing to acquire guns themselves.

Triple Test

- » A five-member commission is appointed in Uttar Pradesh to conduct a survey based on the triple-test formula.
- Supreme Court in the **Vikas Kishanrao Gawali Vs. State of Maharashtra (2021)** gave the triple-test formula to **create OBC reservation in local body elections**.

To set up a **dedicated commission** to conduct a rigorous empirical inquiry into the **nature and implications of the backwardness** in local bodies.

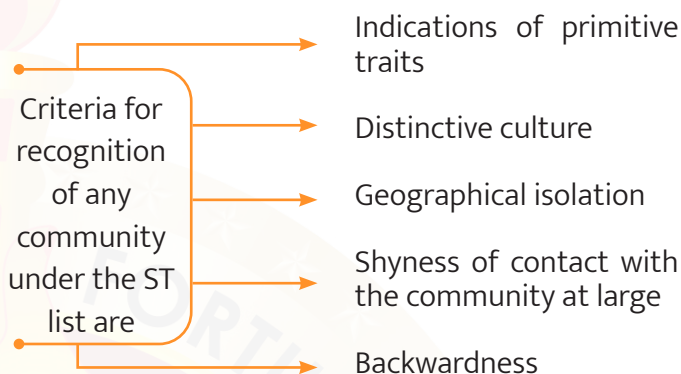
It includes

To specify the **proportion of reservation required in local bodies** in light of recommendations of the commission, so as not to fall foul of overbreadth.

To ensure reservation for SCs/STs/OBCs taken together **does not exceed an aggregate of 50 percent** of the total seats.

Lokur Committee 1965

- » In a reply to an RTI enquiring about the criteria for selecting an ST community, it was revealed that **Office of Registrar-General of India (RGI)**, still uses the old lokur committee criteria in recognizing the ST tribes. This was in spite of an already existing guidelines.
- Lokur Committee (1965) was **set up to look into criteria for defining Schedule Tribes**.



e-Gram SWARAJ Portal

- » e-Gram SWARAJ has won the **GOLD AWARD** under the category “**Excellence in Government Process Re-engineering for Digital Transformation**” of the **National Awards for e-Governance**.
- e-Gram SWARAJ portal was developed by the **Ministry of Panchayati Raj** for effective monitoring and evaluation of **works taken up in the Gram Panchayats**.
- It unifies the **planning, accounting and monitoring** functions of gram panchayats.
- It provides a **single-window for capturing Panchayat information** with the complete Profile of the Panchayat, **details of Panchayat finances, asset details**, activities taken up through Gram Panchayat Development Plan (GPDP) etc.

Aspirational Blocks Programme (ABP)

- » ABP was announced in the **Union Budget 2022-23** and was launched during the **2nd National Conference of Chief Secretaries in January 2023**.
- It is on the lines of the **Aspirational District Programme**, aimed at improving **performance of areas that are lagging on various development parameters**.
- The programme will initially cover **500 blocks across 31 states and union territories** with over half of these blocks located in 6 states- **Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand, Odisha and West Bengal**.
- The **NITI Aayog in partnership with the states** will release a **quarterly ranking** of these blocks based on their performance on development indicators covering sectors such as **health, education and nutrition** among others.

First Information Report (FIR) & Chargesheet

- » Recently, the Supreme court ruled that chargesheets are not public documents like FIRs.

First Information Report (FIR)

- FIR is a written document prepared by the police when they receive information about the **commission of a cognizable offence**.
- The term FIR is **not defined** in the **Indian Penal Code (IPC), Code of Criminal Procedure (CrPC), 1973**, or in any other law.
- Generally **information recorded** under **Section 154 of CrPC** is considered as FIR.
- **Zero FIR** can be logged anywhere around India irrespective of their residence, or place of occurrence of crime. It is transferred to the relevant police station later for further investigation.

Charge Sheet

- According to **Code of Criminal Procedure (CrPC)** a charge sheet is a **report** created by police officers **after investigation**.
- It contains all the records right from **lodging FIR** to the completion of investigation and preparation of **final report**.
- It contains the names of the people brought in the custody, the charges they are brought in for and the identity of the accusers.
- Once the charge sheet has been submitted to a court of law, prosecution proceedings against the accused begin.

PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development)

- » Recently, the **National Council for Education Research and Training (NCERT)** introduced PARAKH.

- It aims to bring school boards from various states and union territories onto a **unified platform**.
- It was launched as a part of the implementation of the **National Education Policy (NEP), 2020**.
- It conducts the **National Achievement Survey** and **State Achievement Surveys**.
- Its functions include: **Large-scale assessments, School-based assessment, and Examination reforms**.

Economy

Prajjwala Challenge

- » Launched by the **Ministry of Rural Development** under the **Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)** in January 2023.
- It is intended to **invite ideas, solutions and actions** that focus on women and marginalised sections of the society, localised models, sustainability etc and can **transform the rural economy**.
- Shortlisted ideas will be acknowledged by the mission and will be provided **mentorship and incubation support to scale up. The top 5 ideas will be rewarded with Rs.2 lakh each**.

National Technical Textile Mission

- » The **Ministry of Textiles** has given clearance to guidelines for **Technical Textiles Degree Programme** in **UG & PG** under the scheme
- It is a mission launched by the Indian government under the **Ministry of Textiles** for the promotion of the technical textile sector in the country.
- It is created for a **period of 4 years** (2020-21 to 2023-24) with an outlay of Rs.1480 crore for developing usage of technical textiles in various

flagship missions, programmes of the country including strategic sectors.

- Major Objectives include improve the **penetration level of technical textiles** in the country & development of **indigenous machineries and process equipment** for technical textiles to promote “**Make in India**”.

Technical Textile in India

- India is the **5th largest producer of technical textiles** in the whole world with a market size of nearly \$22 billion.
- India is aspiring to take its technical textiles market to **\$300 billion by 2047**.

Securitization of Stressed Assets Framework (SSAF)

- Stressed assets are those assets where there is **no profitable revenue** being generated. (E.g., Non-performing assets, written-off assets, and restructured loans)
- RBI has proposed a **new special entity based approach to make the sale process** of these stressed assets easier.
- A Special Entity will be appointed to manage the stressed assets.
- Generally bad loans in India are sold under the **SARFAESI Act**.

Merchant Discount Rate (MDR)

- » The government had abolished MDR on transactions using **RuPay debit cards** and Unified Payments Interface (UPI) from January 1, 2020.
- Merchant discount rates (MDR), is the charge that a **merchant has to pay to the bank concerned every time a consumer uses his debit card on the point-of-sales (PoS) machine**.
- It is **expressed as a percentage of the transaction amount**, often between **1 and 3 percent** of the transaction amount.
- **UPI and RuPay debit cards do not attract any MDR**, it is capped at 0.9 percent for all other debit cards.

Loan Loss Provisions (LLPs)

- Recently, the **Reserve Bank of India (RBI)** published a discussion paper on “loan loss provision”.
- The RBI defines a LLP as an **expense that banks set aside for defaulted loans**.
- Banks in India currently use loan loss provisions based on **incurred loss models**.
- This model assumes that **all loans will be repaid until evidence to the contrary is identified**.
- RBI proposed a framework for adopting an **expected loss (EL) based approach** for provisioning by banks in case of loan defaults.
- Under this, a bank is required to estimate **expected credit losses** based on **forward-looking estimations**.

Open Market Sale Scheme (OMSS)

- » Recently the Central Government decided to **restrict the quantity that a single bidder can purchase in a single bid** under the Open Market Sale scheme.
- Under the scheme, the **Food Corporation of India (FCI)** from time to time **sells surplus food grains from the central pool**, especially wheat and rice, in the **open market** to traders, bulk consumers, retail chains etc at **predetermined prices**.
- The FCI does this through **e-auctions** and usually states are also allowed to procure food grains through OMSS without participating in the auctions for their needs beyond what they get from the central pool.
- While the maximum quantity allowed earlier was **300 metric tonnes per bid for a buyer**, it will now range from **10-100 metric tonnes**.
- The FCI claims that the quantities have been reduced this time to **accommodate more small and marginal buyers** and to ensure wider reach of the scheme.

Voluntary Vehicle Fleet Modernization Program (V-VMP)

- » 11 states/UTs have been onboarded onto the **National Single Window System (NSWS)** for **Voluntary Vehicle-Fleet Modernization Program (V-VMP)** to attract private investment in the vehicle scrapping ecosystem.
- **Ministry of Road, Transport and Highways** is the implementing agency.
- The policy will help **phase out unfit and polluting vehicles** in an **environment-friendly manner**.
- The policy provides for fitness tests after **20 years** for **personal vehicles (PV)**, while **commercial vehicles (CV)** will require it after the completion of **15 years**.
- It was planned to achieve a **lower carbon footprint** in the country by substituting the older vehicles with more sustainable modes of transportation.

Broadcasting Infrastructure and Network Development (BIND) Scheme

- » The Cabinet Committee on Economic Affairs approved the **Central Sector Scheme**- the BIND Scheme under the **Ministry of Information & Broadcasting**.
- It aims to bring **modernisation** to the public broadcaster **Prasar Bharati** i.e. **Akashvani** (AIR) and **Doordarshan** (DD).
- It has an **outlay of Rs.2,539.61 crore** for the time period of **2025-26**.

Cloud Forest 25 (CF 25) Investment Initiative

- » It is a **collective of 25 countries** that have **high cloud forests** (montane forests) launched in 2023.
- **Cloud Forest** are montane forests usually characterized by a persistent, frequent and seasonal low-lying layer of mist and cloud cover usually at the canopy level.

- It includes countries **Indonesia, Tanzania, Democratic Republic of Congo, Colombia, Peru, Venezuela, Mexico, Papua New Guinea, etc. India is not a member.**
- The main aim is to accelerate the international application of market templates and the finance for cloud forest protection.



Cloud forest bonds

- A major tool under the initiative to provide governments with financial actors like philanthropy, public finance and private investment **to capture the economic value of the ecosystem services** of the cloud forests.

International Container Transshipment Port (ICTP)

- » The **Ministry of Ports, Shipping, and Waterways** has invited bids for the ₹41,000-crore mega International Container Transshipment Port (ICTP) at **Great Nicobar**.
- The proposed port will have the ultimate capacity to handle **16 million containers per year** and in the first phase, to be commissioned by 2028, it will handle more than 4 million containers.
- It is **located on the international trade route** with existing transshipment terminals like **Singapore, Klang and Colombo** in proximity.
- The ICTP will be developed in 4 phases and **Public-Private Partnership (PPP)** will be encouraged for this project.
- Currently, nearly **75% of India's transhipped cargo is handled at ports outside India**.

Short selling

- » Recently, Hindenburg Research disclosed reports alleging **stock market manipulation by Adani group**.
- Short selling is a **trading strategy based on the expectation that the price of the security will fall**.
- It is a strategy that speculates on the **decline in a stock or other security's price**.
- For instance, An investor borrows a stock valued at Rs 10,000 and sells it in the market expecting the **price of the stock to rise** in a short term. If the price of the stock falls below a certain level such as Rs 9000, they **buy back** by gaining a profit of Rs.1000.

Hakku Patra

- » The Prime Minister launched the Hakku Patra distribution to over **52,000 eligible beneficiaries** from the **Lambani nomadic tribes** (also known as **Banjaras**) in Northern Karnataka.
- Hakku Patra (**Land Title Deed**) is a **property ownership document** issued to the underprivileged sections of society.
- With the help of the document, the bearer is **eligible to sell and purchase land** to which the title deed is granted.

T+1 Settlement System

- Recently, India became the second country in the world after China to start the T+1 Settlement System.
- In T+1 (Trade-plus-one) settlement the trade-related settlements must be done within **a day, or 24 hours** of the completion of a transaction.
- In the T+1 system, if an investor sells a share, he/she will get the money within a day, and the buyer will get the shares in his/her **demat account** also within a day.

Export Promotion Capital Goods (EPCG)

- » Govt eases norms for certain sectors under Export Promotion Capital Goods scheme. The relaxation has been provided in light of the economic slowdown caused by the COVID-19 pandemic.
- Under the EPCG scheme, **imports of capital goods are allowed duty free, subject to an export obligation**.
- It is administered by the **Directorate General of Foreign Trade (DGFT) (Ministry of Commerce)** and is governed by the **Foreign Trade Policy of India**.
- Under this scheme, manufacturers can import capital goods for **pre-production, production and post-production goods** without attracting any customs duty on them.
- **Second-hand capital goods** may also be imported without any restriction on age.
- Exemption from paying the obligation of customs duty on the import of capital goods is subject to fulfillment of an export value equivalent to **6 times of duty saved** on the importation of such capital goods **within 6 years** from the date of issuance of the authorization.

The WTO Agreement on Fisheries Subsidies

- » **Switzerland** has become the first WTO member to ratify WTO Agreement on Fisheries Subsidies.
- It was adopted at the 12th Ministerial Conference of WTO in 2022 to **regulate and reduce harmful subsidies** that contribute to overfishing and depletion of fish stocks.
- For the Agreement to become operational, **two-thirds of members** have to deposit their "instruments of acceptance" with the WTO. Currently **26 members** have accepted the Protocol. **India has not accepted** it yet.
- Members endorsed the **establishment of Fisheries Funding Mechanism** to provide technical assistance to developing country members.

Utkarsh 2.0

- » RBI launched Utkarsh 2.0 in January 2023.
- It is the **Medium Term Strategy Framework of the Reserve Bank of India** for the period **2023-2025**.
- It focuses on improving regulation and supervision among other functions of the Central bank.
- **Utkarsh 2022, the first strategy framework** covering the period **2019-2022** was launched in **July 2019**.

Additional Tier-1 Bonds

- » Recently, the Bombay High Court quashed the write-off of AT1 bonds of **Yes Bank**.
- A T-1 bonds are bonds issued by **banks and companies**, but pay a slightly **higher rate of interest** compared to other bonds.
- They are a type of **perpetual bond** that doesn't have any **expiry date** and is issued to raise **long-term capital**.
- These bonds are also **listed and traded** on the exchanges.
- Investors cannot return these bonds to the issuing bank and get the money.
- AT-1 bonds are **regulated by the RBI**.
- Banks generally issue these bonds to shore up their core **capital base** to meet the **Basel-III norms**.

International Relations

Pravasi Bharatiya Divas (PBD)

- » PBD is observed on **9th January** to commemorate the **return of Mahatma Gandhi from South Africa to India**.
- This day **came into effect in 2003**, but in **2015 it was revised** and was decided to be **celebrated every two years**.
- On this day, the government confers **Pravasi Bharatiya Samman Award**, which is the highest honour conferred on a Non-Resident Indian (NRI), Person of Indian Origin (PIO) or an organisation established and run by NRI or PIO.

Girmitiya: They were **indentured labourers** from **British India** transported to work on **plantations** in Fiji, South Africa, Eastern Africa, Malaysia, Singapore and the Caribbean as part of the **Indian indenture system**.

Pacific Islands Forum (PIF)

- » Recently the **PIF expressed concern** about **Japan's plan to release treated radioactive water** from the **Fukushima nuclear plant** into the sea.
- PIF is the region's **premier political and economic policy organisation** founded in **1971** and comprises **18 members**.
- It works to achieve a **region of peace, harmony, security, social inclusion and prosperity** by fostering cooperation between governments, collaboration with international agencies and by representing the interests of its members.
- The forum currently recognises **21 dialogue partners including India**.
- The work of PIF is guided by the **2050 strategy for the Blue Pacific Continent**.
- The **annual meetings** are chaired by the **Head of Government of the host country**, who remains as the forum chair until the next meeting.

India-US Trade Policy Forum

- » India and the United States recently held the 13th **Ministerial-level meeting** of India – United States Trade Policy Forum (TPF) in Washington, DC.
- It is a premier forum to resolve **trade and investment** issues between India and the US.
- It has five focus groups: **Agriculture, Investment, Innovation and Creativity, Services, and Tariff and Non-Tariff Barriers.**

Voice of Global South Summit 2023

- » India hosted a **special virtual Summit**, the **Voice of Global South Summit** under the theme **‘Unity of voice, Unity of purpose’** in January, 2023.
- It is envisaged to **bring together countries of the Global South** and share their perspectives on a common platform.
- Inspired by the vision of **‘Sabka Saath Sabka Vikas Sabka Vishwas aur Sabka Prayas** and India’s philosophy of **Vasudhaiva Kutumbakam.**

First Movers Coalition

- » A **flagship public-private partnership** launched by the **USA & World Economic Forum (WEF)** at **UNFCCC COP 26** in **Glasgow** to **clean up** the most **carbon-intensive sectors** like aviation, chemicals, shipping, steel, etc.
- Following, the Indian government began **identifying public sector undertakings (PSUs)** operating in carbon-intensive sectors that can be **initiated into joining** the ‘First Movers Coalition’
- Major participants include: **India, Denmark, Japan, Norway and UK.**

Eurozone and Schengen Area

- » On **1st January 2023**, **Croatia** switched to the Euro and removed dozens of border checkpoints to join the Schengen area.
- **Eurozone** is a **geographic and economic region** that consists of the **European Union countries** that have **fully incorporated the Euro as their national currency.**
- **The Schengen area** signifies a zone where **27 European countries abolished their internal borders** for the free and unrestricted movement of people. Members of this area include **23 of the 27 EU member states and all members of the European Free Trade Association** (Iceland, Liechtenstein, Norway and Switzerland).
- As of January 2023, the **eurozone consists of 20 countries in the European Union.**



General Data Protection Regulation (GDPR)

- » **Meta (Facebook's parent company)** was fined €390m over the use of data for targeted ads under the GDPR law.
- It is a **comprehensive data protection and privacy regulation** implemented in the **European Union (EU)** which came into effect in **2018**.
- Its aim is to **give consumers control over their own personal data** by holding companies responsible for the way they handle and treat this information.
- It **imposes obligations onto organizations** anywhere, so long as they target or collect data related to people in the EU.

Digne resolution

- Digne resolution was the first to recognize the geological heritages of our planet. It was adopted at the UNESCO **"First International Symposium on the Conservation of our Geological Heritage"**(1991).
- India is a signatory to **Global Geoparks**, but there is **no legislations** for protection of geological heritage sites.
- The term geological heritage was first mentioned at **Digne, France in 1991**.

Indus Water Treaty (IWT)

- » India has sent notice to modify the 62-year-old Indus water treaty, citing Pakistan's **"intransigence"** in resolving disputes over the Kishenganga and Ratle hydropower projects, both in Jammu and Kashmir.
- IWT signed in 1960 was a **World bank brokered water sharing treaty** between India and Pakistan.
- According to treaty, all the water of **eastern rivers** shall be available for unrestricted use in India. (**Sutlej, Beas and Ravi**)
- India should let unrestricted flow of water from **western rivers** to Pakistan. (**Jhelum, Chenab and Indus**).

Rivers under Pakistan's control Rivers under India's control



Asian Pacific Postal Union (APPU)

- » It is an intergovernmental organization of **32 member countries of the Asian-Pacific region**. **India** took over the **leadership** in January 2023.
- It aims to **extend, facilitate and improve postal relations** between the member countries and promote cooperation in the field of postal services.
- It is the only **Restricted Union of the Universal Postal Union (UPU)** in the region, which is a specialized agency of the United Nations.
- Headquarters - **Bangkok, Thailand**.

The APPU is made up of the three bodies

Congress

Executive Council

APPU Bureau

Samudrayaan Mission

- » Ministry of Earth Sciences recently shared details of Samudrayaan mission.
- The mission aimed at developing **self-propelled manned submersible- MATSYA 6000** to carry **three human beings to a water depth of 6,000 meters** for **deep ocean exploration**.
- **MATSYA 6000** vehicle is being designed and developed by **National Institute of Ocean Technology (NIOT), Chennai** under **Ministry of Earth Sciences**.
- It is **India's first unique manned ocean mission** and is part of the **Deep Ocean Mission**.

Sustainable Aquaculture in Mangrove Ecosystem (SAIME) initiative

- The Sustainable Aquaculture in Mangrove Ecosystem (SAIME) initiative is a community-based pilot scheme for **sustainable shrimp cultivation in West Bengal**.
- It was started by **NGOs** like **Nature Environment and Wildlife Society (NEWS)** and **Global Nature Fund (GNF)** in West Bengal.
- » Recent studies show that it has been a major contributor in **improving the mangrove cover** in Sunderbans.
- Under the initiative, **shrimp farming and the mangrove ecology** are intertwined by planting mangrove trees around the shrimp ponds.

South Asian Black Carbon Aerosols

- » Recent studies reveal that the **South Asian region adjacent to the Tibetan plateau** has one of the **highest black carbon emissions** in the world.
- **Black Carbon Aerosols** are released into the atmosphere **through incomplete combustion**

of **carbon-based fuels or biomass**. It is characterized by strong light absorption.

- This rise in black carbon aerosols in South Asia is **heating up the middle and upper atmosphere** thereby increasing the North South temperature gradient. Further **leading to increased loss of glaciers from the Tibetan Plateau**.

Tritiated water

- » Japan plans to release tritiated water from the **Fukushima reactor**.
- When one of the **hydrogen atoms in water is replaced by tritium**, it forms radioactive tritiated water.
- Tritiated water is **chemically identical** to normal water, which makes separating it from wastewater expensive, energy intensive and time consuming.
- Tritium is relatively benign and its existence as tritiated water reduces its environmental impact.

System of Air Quality Forecasting & Research (SAFAR)

- » The air quality in the **national capital** came under the very poor category in the **Air Quality Index(AQI)** recorded by the **System of Air Quality and Weather Forecasting and Research (SAFAR)**.
- An **air quality monitoring system** developed by **Indian Institute of Tropical Meteorology (IITM)**, Pune, along with **India Meteorological Department (IMD)** and **National Centre for Medium Range Weather Forecasting (NCMRWF)** launched in 2010.
- It is introduced by the **Ministry of Earth Sciences (MoES)** to provide location specific information on air quality in near real time and its forecast upto 3 days in India.
- The **World Meteorological Organization** has **recognised SAFAR** as a **prototype activity**.

Fenthion

- » **Kenya's government** envisaged **fenthion sprays** to kill around 6 million **red-billed quelea birds** (also known as '**feathered locusts**'), the **world's most populous bird species**.
- It is an **organophosphate pesticide** used for eradicating pests.
- Fenthion has been listed in **Annex III of the Rotterdam convention** as it is toxic to people and other non-target organisms

Asian Waterbird Census

- » The census is conducted **every January** covering the **entire East Asian – Australasian Flyway** and a large **part of the Central Asian Flyway**.
- It is an integral part of the **International Waterbird Census (IWC)**, coordinated by **Wetlands International** along with **Bombay Natural History Society since 1987** in India.
- The programme helps in supporting **conservation** and **management** of wetlands and **waterbirds** worldwide.

Kelp Forests

- » A recent study published in the journal Nature revealed that **Kelp forests are declining because of climate change**.
- Kelp forests are **underwater ecosystems** formed in **shallow water** by the dense growth of several different species.
- Kelp are large **brown algae** that attach to the seafloor and eventually grow to the water's surface and **rely on sunlight to generate food and energy**.
- They **provide underwater habitats to hundreds of species** of invertebrates, fishes and other algae and have great **ecological and economic value**.
- **Kelp Forests**, usually found in **cold waters** has also been found south of the **Galapagos Islands**.

World's Major Kelp Forests in Jeopardy

Global warming threatens ecologically and economically important underwater kelp forests. In recent years, ocean heatwaves have wiped out kelp forests along the coasts of western North America, Australia and New Zealand. The areas marked in red are all potentially threatened.

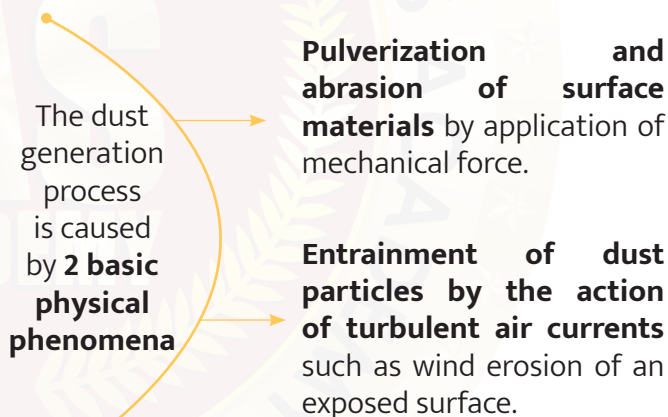


SOURCE: Coastal Ecosystem Services in the Nordic Countries by Hege Gunderson, et al.

PAUL HORN / Inside Climate News

Fugitive Dust

- » In order to minimize and control the fugitive dust in mining areas, **Central Mine Planning and Design Institute Limited (CMPDIL)**, Ranchi has invented a **System and Method for Controlling Generation and Movement of Fugitive Dust** recently.
- Fugitive dust is a **form of particulate matter** that **contributes to air pollution** that is generated from various sources which are exposed to air and not discharged into the atmosphere through a confined flow stream.
- Common sources of fugitive dust include **unpaved roads, agricultural tilling operations and heavy construction operations**.



Wildlife Protection (Amendment) Act (WPA), 2022

- » The new act amends the **WPA of 1972**.
- The Act regulates the protection of wild animals, birds and plants in India.
- The new Act tries to implement provisions of **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**.

Powers of Central government

- They can appoint a Management Authority which grants export or import permits for the trade of specimens.
- They can **regulate or prohibit** the import, trade, possession or proliferation of **invasive alien species**.
- They have the power to notify a conservation reserve.

Reduces the number of schedules from Six to Four

Schedule I

Animal species that will enjoy the highest level of protection

Schedule II

Animal species that will be subject to a lesser degree of protection

Schedule III

Protected Plant species

Schedule IV

Specimens listed in the Appendices under CITES (scheduled specimens)

Wildlife Conservation Bond

- » The world's first wildlife bond has been issued by the **World Bank** to raise USD 150 million which will be used for the **conservation of South Africa's black rhinos**.
- The Wildlife Conservation Bond is the world's first-of-its-kind financial instrument and is an **outcome-based instrument**.
- The returns of the **five-year bond** will be determined by the **rate of population growth** of animals in **the Great Fish River Nature Reserve and the Addo Elephant National Park in South Africa**.

National Green Hydrogen Mission

- » Recently the Union Government has approved a Rs 19744 crore National Green Hydrogen Mission.
- It aims to make India a **global hub for the production and export of green hydrogen**.

- **Ministry of New and Renewable Energy (MNRE)** is the nodal ministry
- It aims to facilitate **demand creation, production, utilization and export of Green Hydrogen**.
- A policy framework will be created for promoting a **Green Hydrogen Ecosystem**.
- A **public-private partnership** framework for R&D will be facilitated under the Mission.

Virtual Power Plants (VPPs)

- » Companies including GM, Ford, Google would work together to establish standards for scaling up use of VPPs.
- A virtual power plant is a **distributed energy system** that connects a **network of decentralised energy resources** such as solar panels, wind turbines, battery storage and demand response systems.
- VPPs use **advanced software and control systems** to manage and optimize the **generation and consumption of energy** from these diverse sources.
- By aggregating and coordinating these resources, **it can enhance grid stability, reduce energy costs and increase the integration of renewable energy into the power grid**.

Standards and Labelling Program (SLP)

- » It is a flagship initiative under the **Ministry of Power**, to provide the consumer **an informed choice** and **knowledge** about energy saving potential.
- The program prescribes a **minimum energy performance** level for the product and is rated on a scale of **1 to 5 with 5 being the most energy efficient**.
- The labels are marked by the manufacturers as per the standards prescribed by the **Bureau of Energy Efficiency**.

Microplastics

- » Scientists from South Korea have developed a new **water purification** system that can quickly and efficiently filter out microplastics. Over **99.9%** of contaminants were taken out of the water in just 10 seconds.
- Microplastics are **tiny fragments of plastic** with a **length of less than 5 mm** (0.2 inches) and are produced as a result of plastic pollution.

iVOFm Technique

- » Researchers at the Indian Institute of Science Education and Research (IISER) in Pune, India have developed a **macro/microporous ionic organic framework - iVOFm** to clean polluted water.
- Viologen-unit grafted organic-framework (iVOFm) is a unique molecular **sponge-like material** to clean polluted water by soaking up the contaminants in it (including carcinogenous materials).
- Its Primary aim is to tackle the issue of water contamination and **increase the access to clean water**.

Green Urban Oases programmes

- » Recently, the Food and Agriculture Organization of the United Nations (FAO) launched a report on **Urban forestry and urban greening in drylands** based on **Green urban oases programmes** (2021).
- To **improve resilience of dryland cities** into 'green urban oases' by tackling climate, health, food and economic challenges.
- It contributes to FAOs **Green City Initiative** to improve the livelihoods and well beings of **urban and peri urban populations**.

Ganjam Kewda

- » Recent growth in demand for kewda aromatic oil in Odisha's Ganjam district has been a boon for the region's inhabitants.
- Ganjam kewda (**Pandanus fascicularis**) oil is **steam-distilled from the flower of the**

aromatic screw pine plant.

- It is used as an **aromatic** in the food industry and other sectors.
- The price per litre of kewda oil was Rs 4.5 lakh last year and the **product has GI tag**.

Geography

Cold Wave

- » Delhi and other parts of northwest India had been reeling under a cold wave spell that set in January.
- The **Indian Meteorological Department (IMD)** marks a cold wave in terms of **minimum temperatures**;
 1. When the **minimum temperature in the plains is 4 degrees or less or**
 2. When the **minimum temperature is less than 10 degrees and 4.5 to 6.4 degrees below the normal.**
- **India's core cold wave zone covers** Punjab, Himachal Pradesh, Uttarakhand, Delhi, Haryana, Rajasthan, Uttar Pradesh, Gujarat, Madhya Pradesh, Chattisgarh, Bihar, Jharkhand, West Bengal, Odisha and Telangana.
- **Absence of cloud cover in the region, subsidence of cold air over the region, La Nina and western disturbances** are the causes of cold wave in India.

Green Comet

- » An exotic green comet that has not passed Earth since the time of the Neanderthals reappeared in the sky for its closest approach to the planet.

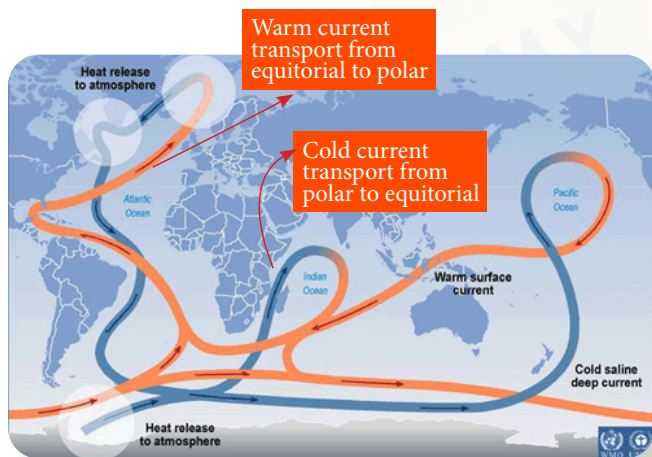


- **Comet C/2022 E3**, which orbits the sun every **50,000** years

- The green glow is thought to arise from the presence of **diatomic carbon** – pairs of carbon atoms that are bound together – in the head of the comet. The molecule emits green light when **excited by the ultraviolet rays** in solar radiation.

Global Overturning Circulation

- » New studies have shown that the global overturning circulation controls ocean heat distribution and atmospheric carbon dioxide levels.
- The **Global Overturning Circulation**, also known as the **Global Conveyor Belt**, is a **system of ocean currents** that circulate & regulate the Earth's climate by redistributing heat and nutrients.



The Global Overturning Circulation can be simplified into two main components

Thermohaline Circulation driven by differences in **temperature** (thermo) and **salinity** (haline) in the ocean water. It involves the sinking of cold, dense, and saline water in the polar regions and the upwelling of warmer water at lower latitudes. The **sinking in the North Atlantic**, for example, is a critical part of this circulation.

Wind-Driven Circulation primarily driven by the **wind patterns at the ocean's surface**. It includes the **major surface currents like the Gulf Stream and the North Equatorial Current**. These currents move warm water from the equator toward the poles.

Bharat Pravah initiative

- » It is launched by the **Ministry of Ports, Shipping and Waterways**.
- It aims to promote the **role of rivers-ports and shipping in the everyday life** of the general public through **literature, dialogue and communication**.
- Programs will be organized on various themes such as rivers and sea based development in India, folk culture and literature on the sea, rivers, ports and ships under the initiative.

Land Subsidence

- » **Joshimath** in Chamoli district of Uttarakhand is the recent example of land subsidence.
- The people alleges that the nearby **Tapovan Vishnugad hydroelectric project** might have triggered land subsidence
- Subsidence can be defined as the **“sinking of the ground because of underground material movement”**.
- It can occur due to **man-made or natural causes** such as the **removal of water, oil, or natural resources, mining activities** etc.
- **Earthquakes, soil erosion, and soil compaction** can also cause subsidence.



Lucy Mission

- » NASA recently announced that it is adding a new target for the Lucy mission as the spacecraft goes on its more than 6-billion-kilometre-long journey to study the Jupiter trojan asteroids
- NASA's Lucy mission is the **first spacecraft launched to explore the Trojan asteroids**, a population of primitive asteroids orbiting in tandem with Jupiter.
- **Trojan asteroids** are a group of asteroids that share Jupiter's orbit around the sun.
- Lucy was successfully **launched on 16th October 2021** and will visit **8 asteroids over 12 years**- one asteroid in the main belt between Mars and Jupiter and 7 trojan asteroids leading and trailing Jupiter in its orbit.
- The mission is named after the **Lucy hominin fossils** because the **study could reveal the fossils of planet formation**.

Intelligent Knife (iKnife)

- » A recently developed surgical knife by Imperial College of London is capable of identifying tumors that can detect **endometrial cancer** within seconds.
- The iKnife is an **operative tool** that can detect cancer in tissues at the time of surgery.
- The intelligent knife is the coupling of **rapid evaporative ionization mass spectrometry (REIMS)** technology with electrosurgery for tissue diagnostics
- It essentially **'smells'** the tissue for cancerous cells.
- It has reliably diagnosed endometrial cancer in tissue within seconds with an **accuracy of 89%**.

Virovore

- » Researchers recently found the first known **"Virovore", an organism which obtains energy and nutrients from the consumption of viruses.**
- They found a **species of Halteria**, which are microscopic ciliates found in freshwater throughout the world. This species can **eat huge numbers of infectious chloro viruses.**
- This marks a first-of-its-kind finding which has shown that a virus-only diet, termed **"virovory"**.

Biotin

- Biotin, also known as **Vitamin B7** or **Vitamin H** is one of the B vitamins that is involved in a wide range of **metabolic processes** primarily related to the **utilisation of fats, carbohydrates and amino acids.**
- It is a **water soluble vitamin** that **boosts the health of hair and nails, supports healthy pregnancy and helps manage blood sugar levels** among other benefits.

Pan Transcriptome

- » Recently, researchers have reported the first-ever method for **analyzing RNA sequencing** data genome-wide using a "pan transcriptome"
- It is a reference that **contains genetic material from a group of diverse individuals**, rather than just a single linear strand.
- It is a combination of a **transcriptome and a pan-genome.**
- **Transcriptome** is the complete **set of transcripts in a cell**, and their quantity, for a specific developmental stage or physiological condition.
- **Pan-genome** is defined as the **set of orthologous and unique genes** of a specific group of organisms.
- It can provide insights into the **evolution and adaptation** of different species.

BharOS software

- » Recently, an IIT Madras-incubated company has developed the BharOS.
- BharOS is a **mobile operating system** similar to Android or iOS; it is based on an **AOSP** (Android Open Source Project) operating system.
- A contribution towards the idea of a **self-reliant India or 'Atmanirbhar Bharat'** by creating a secure OS environment for **India-based users**.
- It does not use any Google apps or services and comes **without any default apps**.
- BharOS would offer **Native Over the Air (NOTA)** updates, meaning that security updates and bug fixes will be automatically installed.

Planetary Parade

- » NASA recently shared an **image of a planet parade** consisting of **Venus, Saturn, Jupiter and Mars** in a **linear pattern**.
- The term is widely used in astronomy to denote a series of rare and unique events when the **planets of the solar system appear in a row** to the naked eye.
- The types of planetary parades are distinguished according to the number of participating planets: Mini planet parade (3 planets), Small planet parade (4 planets) and Large planet parade (5 or 6 planets).

Immune Imprinting

- » A recent study found that **bivalent boosters** made to counter both the Omicron and the original Covid-19 strain **did not generate significantly greater antibody responses due to immune imprinting**.
- It is a **tendency of the body to repeat its immune response** based on the first variant it encountered (through infection or vaccination) **when it comes across a newer or slightly different variant** of the same pathogen.

- After our body is exposed to a virus for the first time, it produces **memory B cells** and quickly **produces antibodies whenever the same strain of the virus infects again**.
- When a **similar but not identical variant of the virus** is encountered by the body, the immune system, rather than generating new B cells, activates memory B cells which in turn produce antibodies that bind to features found in both the old and new strains, known as **cross-reactive antibodies**.
- The cross-reactive antibodies aren't as effective as the ones produced by the B cells when the body first came across the original virus.

Sponge City

- » Recently cities like **Shanghai, New York and Cardiff** has started adopting measures to become sponge cities.
- Sponge cities are **urban areas** with abundant natural areas such as trees, lakes and parks, other good designs intended to **absorb rain and prevent flooding**.
- This nature based solution to tackle climate shocks like urban flooding gained popularity
- The 34-hectare **'Qunli stormwater park'** in the **city of Harbin** in northern China is one example of a **successful sponge city**.

SPRINT' Scheme

- » It is an initiative to promote development of niche **defence technologies by domestic companies**.
- It is one of **75 challenges** introduced by the **Indian Navy** under the **Azadi ka Amrit Mahotsav**.
- The **Naval Innovation and Indigenisation Organisation (NIIO)** and the **Defence Innovation Organisation (DIO)** aim to induct at least **75 new indigenous technologies/products** into the Indian Navy under the scheme.
- It aims to transform the Navy from a **'Buyer's Navy' to a 'Builder's Navy'**.

Giant Metrewave Radio Telescope (GMRT)



- » Recently, astronomers have used **data from the GMRT to detect a radio signal originating from atomic hydrogen** (basic fuel required for star formation in a galaxy) in an extremely distant galaxy.
- The GMRT is an **array of 30 fully steerable parabolic radio telescopes of 45m diameter**, observing at **metre wavelengths**.
- Located near Narayangaon, **Pune**, it is operated by the **National Centre for Radio Astrophysics (NCRA)**, a part of the **Tata Institute of Fundamental Research**.
- It is the **largest and most sensitive radio telescope array in the world at low frequencies**.

Biologicals

- » Recently, the **National Summit on Quality of Biologicals** was conducted by **Ministry of Health and Family Welfare**.
- Biologicals or biological products are **medicines made from living organisms** through highly complex manufacturing processes and must be handled and administered under carefully monitored conditions.
- Biologicals are used to **prevent, treat or cure** a variety of diseases including **cancer, chronic kidney disease, diabetes, cystic fibrosis, and autoimmune disorders**.
- **India** is one of the **leading manufacturers** of biologicals.

Quantum Coherence

- » Recently an international team of scientists made a breakthrough in retaining the **quantum coherence of quantum dot spin qubits**.
- Quantum Coherence deals with the idea that **all objects have wave-like properties**.
- According to this, if an object's wave-like nature is split in two, then the two waves may **coherently interfere with each other** in such a way as to **form a single state** that is a **superposition of the two states**.
- It lies in the heart of quantum computing in which a **qubit is in a superposition of the 0 and 1 states**.
- **Quantum dots (QDs)** are a unique type of nanocrystalline semiconductor whose electronic and optical properties depend on the size and shape of the dots.

Phytorid Technology

- » A water treatment plant, using phytorid technology and with an installed capacity of 5 MLD (million litres per day), the **largest in the country** was inaugurated in Tirupati.
- The technology was developed by CSIR's **National Environmental Engineering Research Institute (NEERI)**.
- It is a **self sustaining technology** for wastewater treatment that works on the **principle of natural wetland**.
- Phytorid uses **specific plants** that can absorb nutrients directly from waste water **without soil**. The plants act as **nutrient sinkers and removers**.
- **Zero energy and zero operation & maintenance (O&M)** is a key feature of this technology.

Neglected Tropical Diseases (NTD)

- » **World Neglected Tropical Diseases (NTD) Day** is observed on **30th January**.
- » **Global Report on Neglected Tropical Diseases** is released by **World Health Organisation (WHO)**
- NTDs are a **diverse group of 20 conditions** that are mainly **prevalent in tropical areas** caused by a variety of pathogens including **viruses, bacteria, parasites, fungi and toxins**.
- They are '**neglected**' because **they are almost absent from the global health agenda**.
- Some major examples of NTDs include dengue and chikungunya, rabies, lymphatic filariasis, etc.

Initiatives to eliminate NTDs

- **WHO's new road map for NTDs sets out global targets to prevent, control, eliminate and eradicate a diverse set of NTDs by 2030.**
- **The Accelerated Plan for Elimination of Lymphatic Filariasis (APELF)** was launched in **2018** as part of intensifying efforts towards the elimination of NTDs in India.
- India has already eliminated several NTDs including **guinea worm, trachoma and ya-ws**.

Neuromorphic Computing

- » Recently scientists from **Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)** have developed Artificial Synapse Neuromorphic Computing.
- Neuromorphic Computing refers to the **designing of computers** that are based on the systems found in the **human brain** and the **nervous system**.
- It is very significant in the development of the **Artificial Neural Network model (ANN)**.
- Neuromorphic computing has been a revolutionary concept in the sphere of **Artificial Intelligence**.

Talacauvery

- » Recently astronomers hosted "**star parties**" in Talacauvery.
- It is often considered to be the most ideal location to **gaze at the sky and have a star party** due to less light pollution.
- Talacauvery in the Kodagu district of Karnataka, which is considered the place of origin of the Cauvery River.
- It is called **South India's Hanle**
- (Hanle Dark Sky Reserve (HDSR) in Ladakh is India's first dark sky region)

Dexa Scan

- » **Board of Control of Cricket in India (BCCI)** to introduce Dexa scan in light of several players suffering from injuries.
- Dexa, also known as a **dual-energy X-ray absorptiometry scan**, is a type of medical imaging test that uses X-ray technology to measure the mineral content and bone strength of players.
- The **bone density** is determined by counting the number of X-rays that are released after each beam passes through the bone.
- The test generally focuses on **two areas of the body**: the **hip and the spine**, and in some cases the forearm, which are most susceptible to getting a fracture in the body.

Platinum Drugs

- » Scientists have discovered **alternative drug** with high **antitumor potency** on cancer cells, instead of platinum drugs.
- Platinum drugs are **chemotherapeutic agents** used for treatment of many types of cancers.
- Due to **fast adaptations** from patients, the platinum drugs were being ineffective.

- Patient are prone to any combination of almost **40 specific side effects** while using platinum drugs.

REPLACE

- » A recent report by WHO has found that **5 billion people** globally remain unprotected from harmful trans fats.
- It was launched by the **World Health Organization (WHO)** in 2018 to eliminate industrially produced artificial trans-fats from global food supply by **2023**.



- Trans fats are **partially hydrogenated oils (fatty acid)** which are created naturally or artificially.

Scope for Mainstreaming Ayurveda Research in Teaching Professionals (SMART) Program

- » It was launched by the **National Commission for Indian System of Medicine (NCISM)** and the **Central Council for Research in Ayurvedic Sciences (CCRAS)** under the **Ministry of Ayush**.
- It aims to boost **scientific research** in priority healthcare research areas through **Ayurveda colleges and hospitals**.
- Its objective is to **identify, support and promote innovative** research ideas in healthcare research areas.

- It gives primacy to iron deficiency anaemia, chronic bronchitis, obesity, diabetes mellitus, psoriasis, generalised anxiety disorder etc.

Lymphatic Filariasis (Elephantiasis)

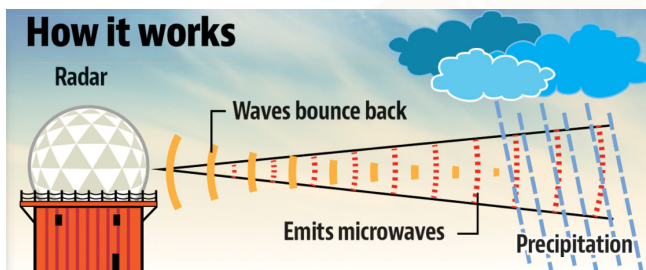
- » India conducted the **National Symposium on India's Roadmap to Eliminate Lymphatic Filariasis (LF)** unveiling the aim to **eliminate Lymphatic Filariasis by 2027**, three years ahead of the global target, through the five-pronged roadmap".
- A **tropical parasitic disease** spread by **infected mosquitoes** that affects the **lymph nodes** and **lymph vessels**.
- It is considered as a **neglected tropical disease** which **affects over 120 million people in 72 countries** throughout the tropics and subtropics of Asia, Africa, the Western Pacific, and parts of the Caribbean and South America.

DNA mitochondrial profiling

- » Recently, hair and bone samples of Shradha Walkar (victim) were sent for DNA mitochondrial profiling by police.
- A mitochondrial DNA analysis examines biological evidence when the **nuclear DNA** is present in very low quantities, or when the bones are degraded or in samples such as hair, and teeth
- It is used to determines the **mitochondrial DNA (mtDNA)** sequence from samples such as hair, bones, and teeth. Usually, in cases were DNA extraction is difficult.

Doppler weather radar network

- » Indian meteorological department has recently announced setting up additional 25 Doppler Weather Radars (DWR).
- Doppler Weather Radars (DWR) is a system that uses radar technology to **detect and track moving objects**.
- System of multiple radar stations that work together to provide **comprehensive data** on an area.
- Used for predicting extreme **weather events accurately** and in a timely manner.



Kala Azar Disease/ Black Fever

- » Recent studies have shown that there has been **98.7% decline** in cases of Kala-azar from 44,533 in 2007 to 834 in 2022 in India.
- **Kala Azar** is a disease caused by infection with **Leishmania parasites** transmitted by **female sandfly - Phlebotomus argentipes**.
- It is considered the **second deadliest parasitic killer** in the world after Malaria.
- It is a **treatable disease with anti-leishmanial medicines**.

Government steps to tackle the disease burden include:

- India renewed its commitment of **eliminating kala-azar from the country by the end of 2023**.
- **National Kala Azar Elimination Programme** launched in 1990-91 in **endemic states** like Bihar, Jharkhand, etc.

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