

February - 23

## TNPSC BITS

- ❖ The union government has extended the term of chief economic advisor (CEA) V Anantha Nageswaran by two years till March 2027.
- ❖ The Delhi cabinet led by CM Rekha Gupta has approved the implementation of the Central Government's Ayushman Bharat scheme and tabling of the 14 CAG reports in the first session of the new assembly.
- ❖ Hindustan Aeronautics Limited (HAL) has achieved a significant milestone by conducting the engine ground run of a full-scale demonstrator, Combat Air Teaming System (CATS) – Warrior.
- ❖ The Researchers at the IIT Guwahati have developed an advanced biological method to convert methane and carbon dioxide into cleaner biofuels using methanotrophic bacteria.
- ❖ Google DeepMind unveiled GenCast, an artificial intelligence (AI) model that could forecast the weather better than the most existing tools as well as more days in advance.
- ❖ Researchers at IIT Roorkee has successfully used an esterase enzyme which is produced by soil bacteria *Sulfobacillus acidophilus* to break down diethyl hexyl phthalate (DEHP) plasticizer.
- ❖ The 2<sup>nd</sup> national convention on draft University Grants Commission (UGC) regulations of 2025 held in Thiruvananthapuram in Kerala with the participation of Telangana, Tamil Nadu, Kerala, and Jharkhand to oppose the draft.
- ❖ The Centre has launched the Digital Brand Identity Manual (DBIM) at the inaugural Chief Information Officer (CIO) Conference 2025, New Delhi
- ❖ The Indian Naval Sailing Vessel (INSV) Tarini entered Port Stanley, Canada by completing the third and most challenging phase of Navika Sagar Parikrama II.
- ❖ The 4th No Money for Terror (NMFT) Conference was held in Germany and India proposed a permanent NMFT Secretariat at New Delhi.
- ❖ West Bengal led third consecutive times with 543 species in the 28th Great Backyard count.
- ❖ Mangaluru-based Karnataka Bank Ltd. (KBL), set up in February 1924 by a group of professionals, turns 100 recently.

- ❖ Nagaland Forest Management Project (NFMP) has been honoured with the prestigious SKOCH Award 2024 at the 100th SKOCH Summit in New Delhi.
- ❖ The two-day 2nd Simolu Festival celebrating the attractiveness of the Bombax ceiba flowers was held in Assam.

## TAMIL NADU

### New members to SC/ST Commission 2025



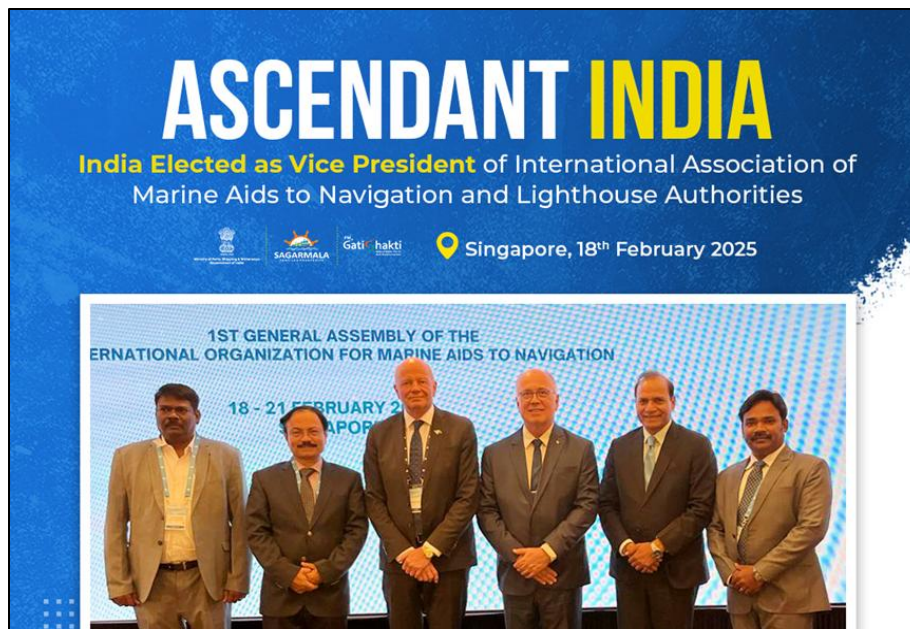
- ❖ Noted writer and Sahitya Akademi Award recipient Imayam alias V. Annamalai has been named the Vice-Chairperson of the Tamil Nadu State Commission for SC/ST.
- ❖ S. Selvakumar (Coimbatore district), S. Ananda Raja (Thanjavur), M. Pon Dhous (the Nilgiris) and P. Ilanchezhian (Tirunelveli) were the other members of the Commission.
- ❖ Ilanchezhian has been re-nominated to the council.
- ❖ The members of the commission have three-year tenure.
- ❖ The State government has constituted the commission under the provisions of the Tamil Nadu State Commission as per the SC/ST Act 2021.
- ❖ It appointed a retired Madras High Court Judge S. Tamilvanan as Chairperson.

- ❖ Its role is crucial in public seeking remedy for violations of rights under the Protection of Civil Rights Act 1955 and the SC/ST (Prevention of Atrocities) Act.
- ❖ It also investigates negligence in preventing such violations by a public servant.

## NATIONAL

### India - IALA Vice President

- ❖ India is elected as the vice president of the International Organisation of Aids to Marine Navigation (IALA).
- ❖ India will also host the IALA Council meeting in December 2025 and the IALA Conference & General Assembly in September 2027 in Mumbai.
- ❖ IALA was established in 1957 as a non-governmental organisation (NGO).
- ❖ It offers the opportunity to exchange and compare their experiences and their achievements in the marine field.

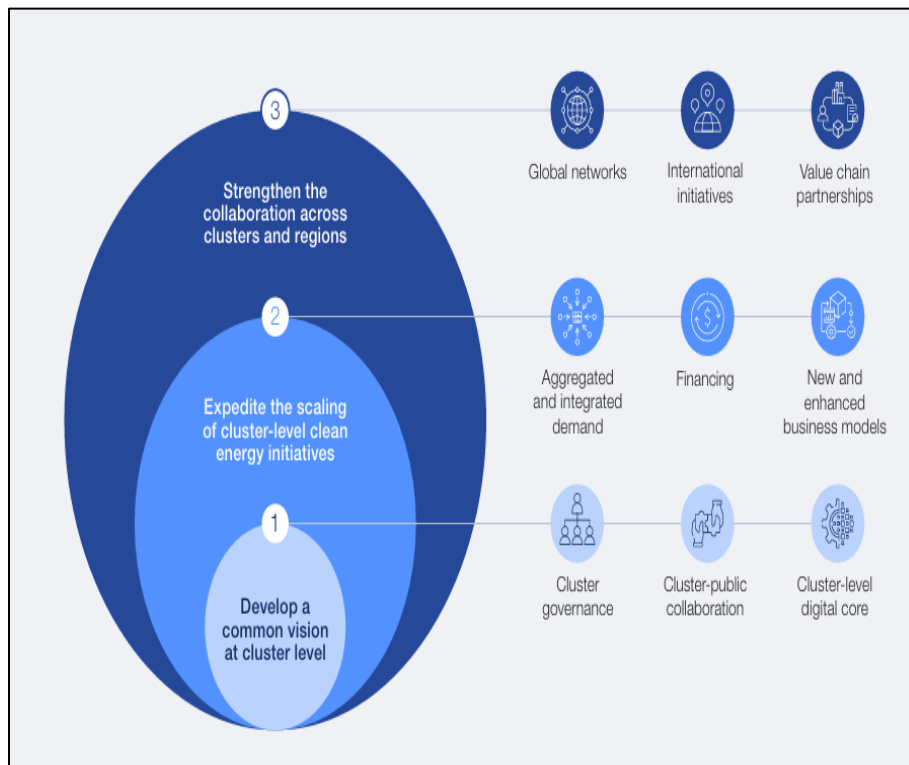


## INTERNATIONAL

### Job creation and cutting on emissions

- ❖ Thirteen new industrial clusters have joined the World Economic Forum's (WEF) Transitioning Industrial Clusters initiative.
- ❖ It was bringing the total number of the participating clusters to 33 across 16 countries and five continents.

- ❖ The new joiners came from Australia, Brazil, Colombia, India, the Netherlands, Saudi Arabia, Sweden, Thailand, and the United Kingdom.
- ❖ This initiative, launched at COP26 in 2021, aims to reduce greenhouse gas emissions while promoting economic growth and job creation.
- ❖ Together, the 33 clusters have the potential to cut 832 million tonnes of carbon dioxide-equivalent emissions annually.
- ❖ It is roughly equivalent to the emissions of Saudi Arabia.
- ❖ These clusters also contribute \$492 billion to global GDP and support 4.3 million jobs.



## SCIENCE AND TECHNOLOGY

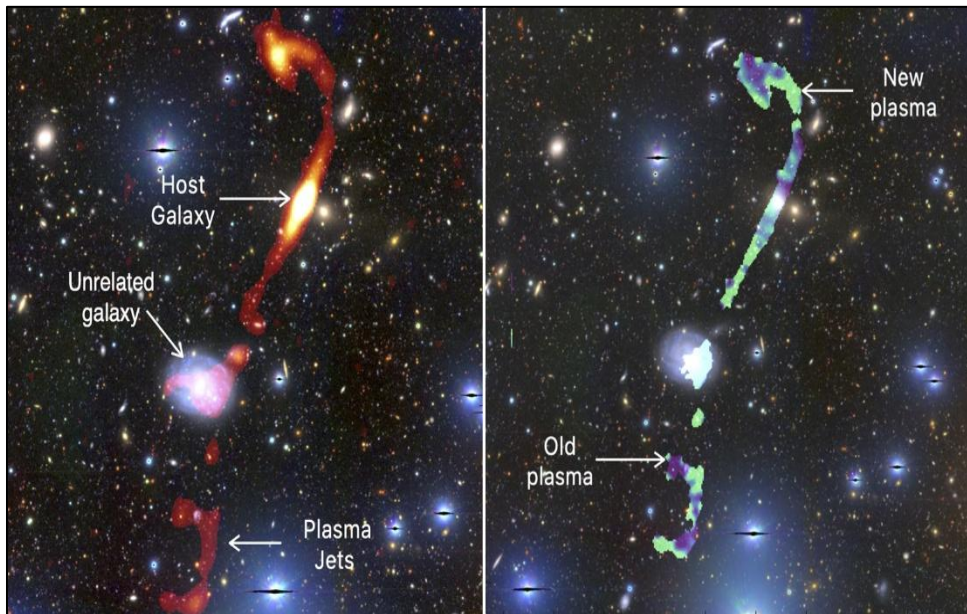
### Silicon Carbide from Simulated Lunar Soil

- ❖ IIT-Madras have tasted success in extracting the silicon carbide from (simulated) moon soil.
- ❖ This development could lead to the making of silicon carbide-based composites for building lunar habitats.
- ❖ Silicon carbide is a combination of silicon and carbon.
- ❖ Only 382 kg of moon rocks and soil have been brought to the earth.

- ❖ So, the entities make simulated lunar soil for research.
- ❖ The Lunar highlands are also rich in silicon (among the other elements such as aluminium and calcium).



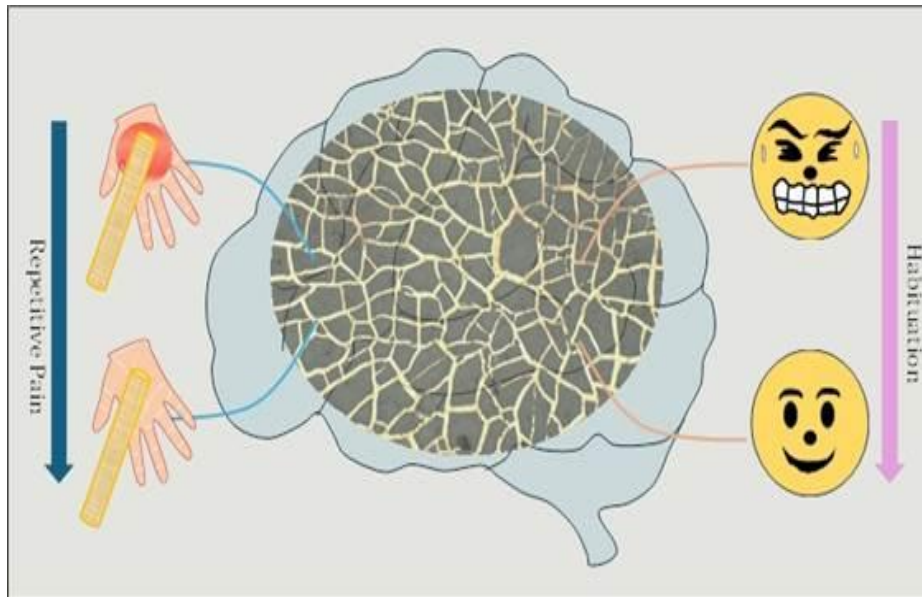
### **Inkathazo galaxy**



- ❖ South Africa's MeerKAT telescope has discovered a new giant radio galaxy, nicknamed 'Inkathazo,' meaning 'trouble'.

- ❖ The cosmic megastructure measures 3.3 million light-years.
- ❖ It is 32 times the size of our Milky Way galaxy and is 1.44 billion light-years away from Earth.
- ❖ MeerKAT will soon become part of the Square Kilometre Array (SKA).

### **Neuromorphic device by India**

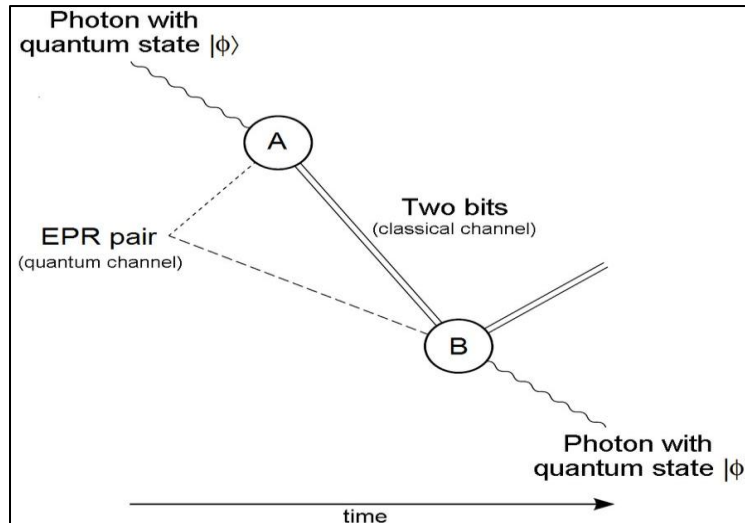


- ❖ The Scientists have developed a wearable device that senses strain, mimics pain perception and adapts its electrical response accordingly.
- ❖ Neuromorphic devices give multiple ideas about how the human body senses and responds to pain.
- ❖ The device has been developed by using the silver wire network on a stretchable material.

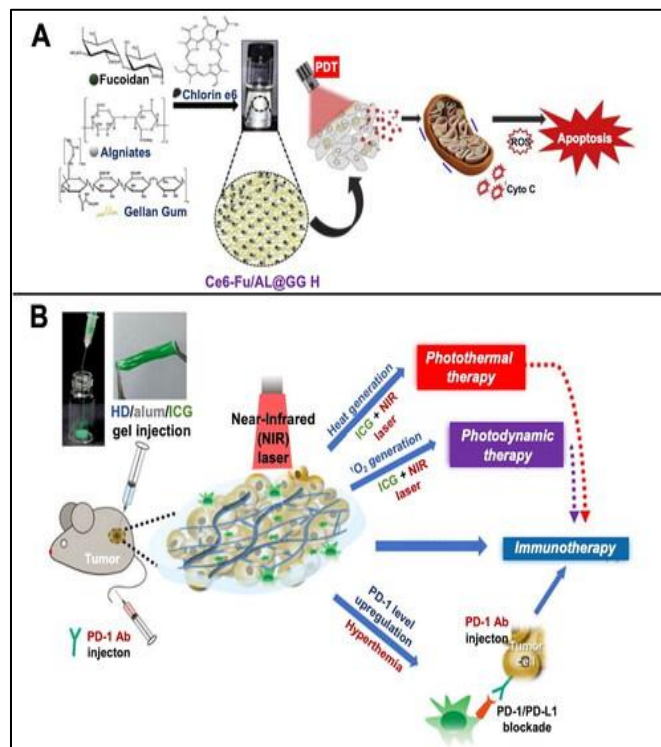
### **Quantum Teleportation**

- ❖ The researchers achieved quantum teleportation of logical gates.
- ❖ Quantum computers use qubits (quantum bits) instead of the traditional bits of classical computers.
- ❖ However, the scalability of quantum computing has remained a challenge for the scientists.
- ❖ They use the quantum teleportation to create interactions between these distant systems.

- ❖ Quantum teleportation involves sending information from one place to the other by using something called "quantum entanglement".
- ❖ Unlike sending a physical object, it is sending the state or condition of a particle.



## Advanced Hydrogel for Cancer Treatment



- ❖ The Researchers from the IIT -Guwahati and the Bose Institute, Kolkata have developed an advanced injectable hydrogel for localised cancer treatment.

- ❖ This hydrogel serves as a stable reservoir for anti-cancer drugs, releasing it in a controlled manner while sparing healthy cells from harm.
- ❖ These Hydrogel delivers drugs precisely to the tumour site, ensuring the localised action.
- ❖ Hydrogels are the water-based, three-dimensional polymer networks capable of absorbing and retaining fluids.
- ❖ Their unique structure mimics the living tissues, making them suitable for the biomedical applications.

### **Javelin Anti-Tank Guided Missile**

- ❖ India and the US have announced plans to pursue the new procurements and co-production arrangements for Javelin anti-tank guided missiles.
- ❖ FGM-148 Javelin is a highly advanced American-made anti-tank guided missile system.
- ❖ It is the man-portable, shoulder-fired, anti-armour system automatically guides itself to the target after launch.
- ❖ It has an effective range of 2.5 km.

## **FGM-148 JAVELIN**



MJV-1

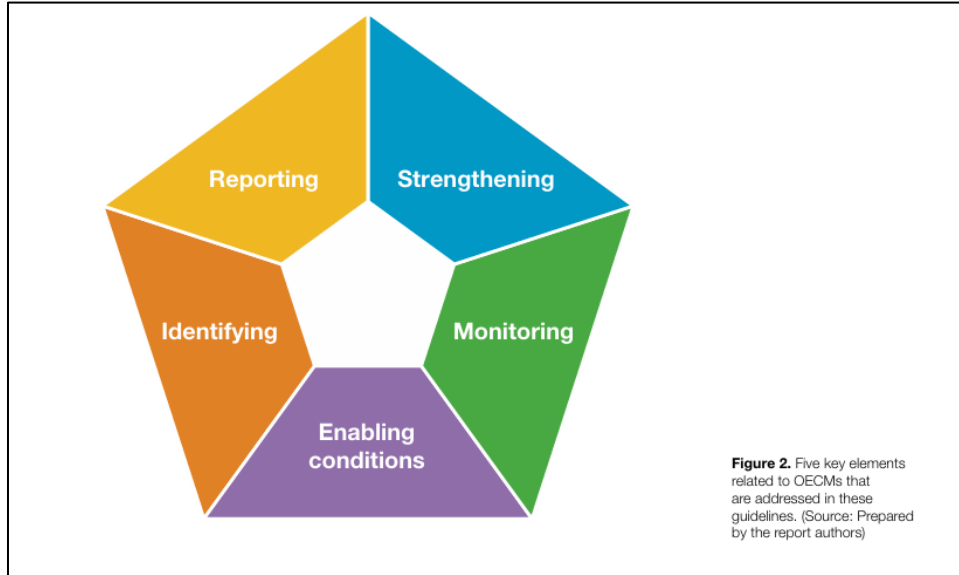
## **ENVIRONMENT**

### **IUCN OECMs report**

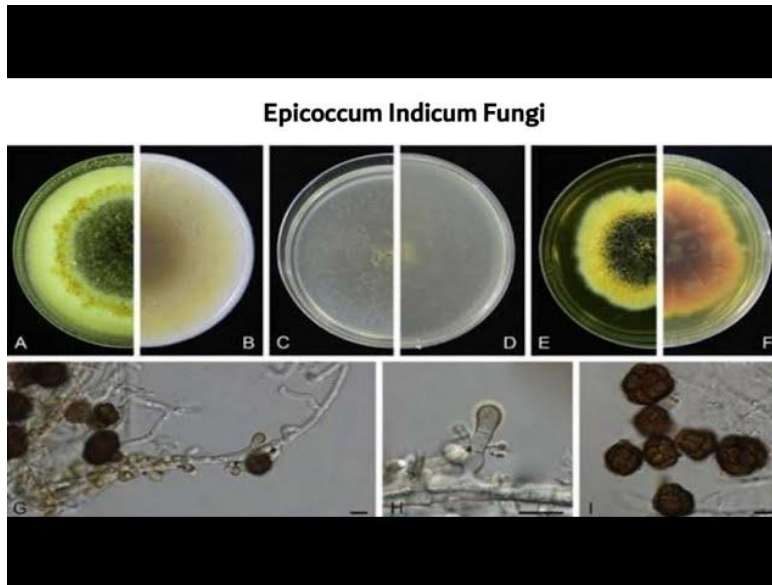
- ❖ IUCN released 'Guidance on Other Effective Area-Based Conservation Measures (OECMs) report.
- ❖ This report provides the critical guidance on conserving land, water, and coastal areas through OECMs.



- ❖ It will support to achieve Target 3 of the Kunming-Montreal Global Biodiversity Framework (KMGBF) 2022 to conserve 30% of these areas by 2030.
- ❖ The OECMs aren't the formal protected areas (PAs) but contribute to biodiversity conservation.
- ❖ India hosts around 14 Other Effective Area-Based Conservation area.



### New Phytopathogenic Fungus



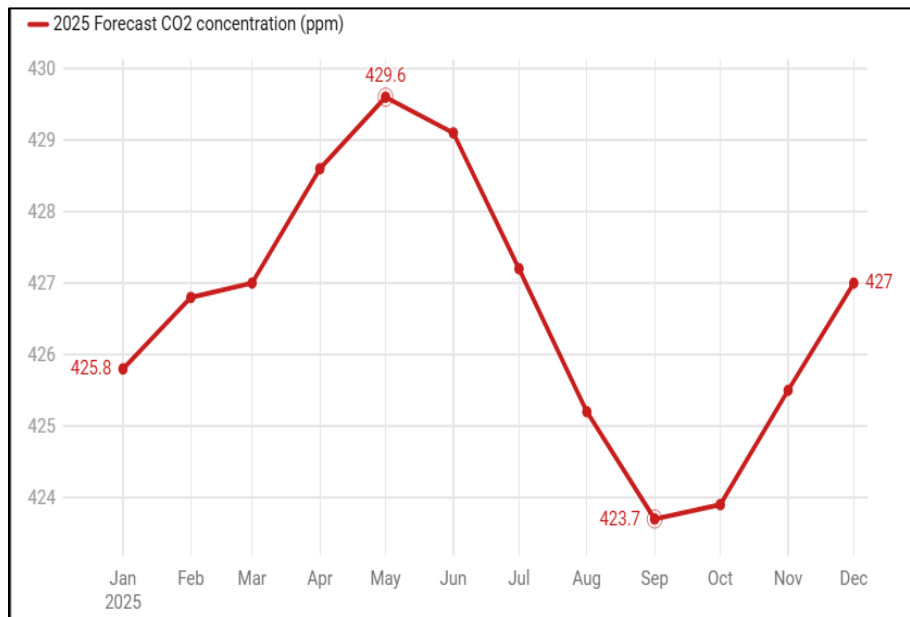
- ❖ The Researchers have also recently discovered a new species of phytopathogenic fungi, *epicoccum indicum*.



- ❖ It is associated with an emerging leaf spot disease in *Chrysopogon zizanioides* (vetiver).
- ❖ Phytopathogenic fungi causes to diseases in the plants, leading to the significant economic losses in agriculture and horticulture.

### **Mauna Loa carbon dioxide forecast for 2025**

- ❖ It is a forecast of measurements from Mauna Loa Observatory in Hawaii.
- ❖ In May 2025, atmospheric carbon dioxide levels are forecast to be 429.6 ppm.
- ❖ This will be the highest atmospheric CO<sub>2</sub> concentration for over 2 million years.
- ❖ This is an increase of approximately 2.26 ppm between 2024 and 2025.
- ❖ The recorded annual rise of 3.58 parts per million (ppm) between 2023 and 2024 had surpassed the predicted increase of 2.84 ppm.
- ❖ Global wildfires in 2023 emitted 7.3 billion tonnes of CO<sub>2</sub>.
- ❖ The global carbon emissions from the fossil fuels hit a record high in 2024 and are estimated to be 41.6 billion tonnes in 2024.



## **REPORTS AND INDICES**

### **Blueprint to Close the Women's Health Gap Report**

- ❖ This report was prepared by the World Economic Forum and the McKinsey Health Institute.

- ❖ Women live 25% more of their lives in poor health when compared to men.
- ❖ 9 selected conditions drive 1/3rd of women's health gap.
- ❖ It includes conditions that affects lifespan and conditions that affect health span which includes Cervical & Breast cancer, Maternal hypertensive disorders etc.
- ❖ Closing this health gap could generate \$1 trillion in annual global GDP by 2040.



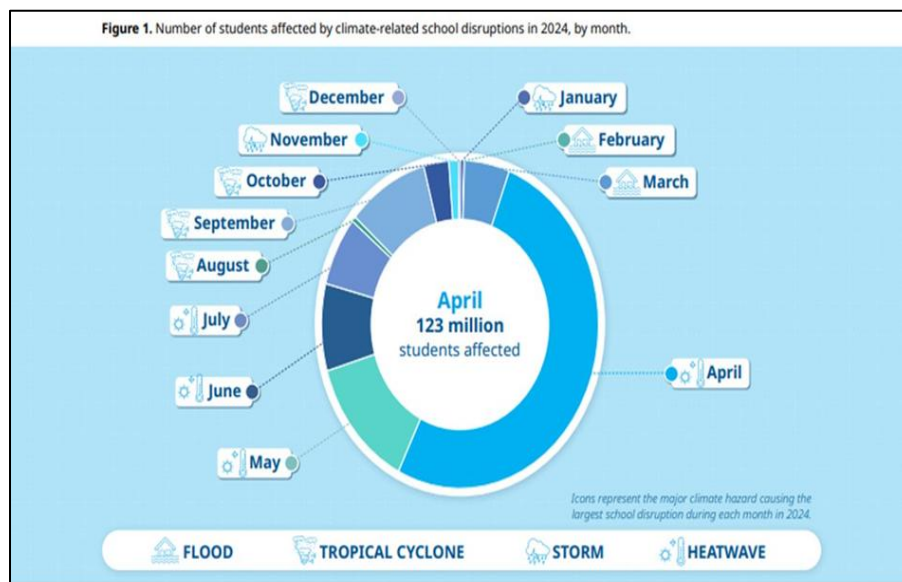
### **Navigating Global Financial System Fragmentation report**



- ❖ This report has estimated that fragmentation resulting from statecraft policies could cost the global economy \$0.6 trn to \$5.7 trn up to 5% of global GDP.

- ❖ This is due to the reduced trade and cross-border capital flows as well as lost economic efficiencies.
- ❖ India and some of the other emerging economies can bear the biggest burden in the most extreme fragmentation scenario.
- ❖ Already the dollar's share in global reserves from 71% (1999) to 58% (2024).
- ❖ This Fragmentation also refers the degree of differences that exists across the jurisdictions in the prices of economically identical (or similar) assets, or in the free movement of capital across borders, etc.

## UNICEF report on Education



- ❖ The report titled, “Learning Interrupted: The Global Snapshot of Climate-Related School Disruptions in 2024”, was released by UNICEF.
- ❖ At least 242 million students from pre-primary to the upper secondary education have experienced school disruptions due to climate events in 2024.
- ❖ The report identified 119 climate hazards that led to school disruptions.
- ❖ Heat waves caused the most disruptions, impacting at least 171 million children.
- ❖ Over 118 million students were impacted in April alone.
- ❖ The Nationwide school disruptions in Bangladesh, Cambodia, and the Philippines disrupted schooling for over 63 million children.
- ❖ Tropical cyclones affected 18 million students in September.
- ❖ In Zimbabwe, a prolonged drought impacted schooling for 1.8 million children in 2024.


- ❖ South Asia was the most affected region in 2024 with 127,845,148 students are affected by climate-related school disruptions.
- ❖ The majority, 54 million, were in India and most of them were hit by heat waves, which also affected 35 million in Bangladesh.
- ❖ The West and Central Africa, and the Eastern and Southern Africa has primarily experienced flood-related disruptions impacting around 12 million and 8 million students, respectively.

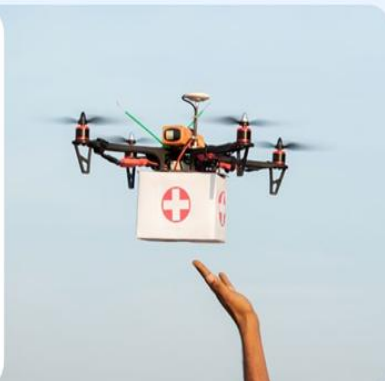
### **Fourth Industrial Revolution Impact Report**

- ❖ The World Economic Forum (WEF) released the Centre for the Fourth Industrial Revolution Network 2023-2024 Impact Report.
- ❖ The report focuses on research and impact generation in the areas such as the Intelligent Age, agriculture, health and biotechnology, and the energy transition.
- ❖ The Saagu Baagu pilot program in Telangana, which is involving around 7,000 chili farmers, was mentioned in the report.
- ❖ It also highlights the significant initiatives like the use of drones for healthcare delivery in India and how innovation can address global challenges.

Case study 8:  
Medicine from the Sky

India

 **Context:**  
India's healthcare system faces challenges in reaching remote and mountainous regions due to infrastructure limitations and adverse weather conditions, particularly in the Himalayan states.

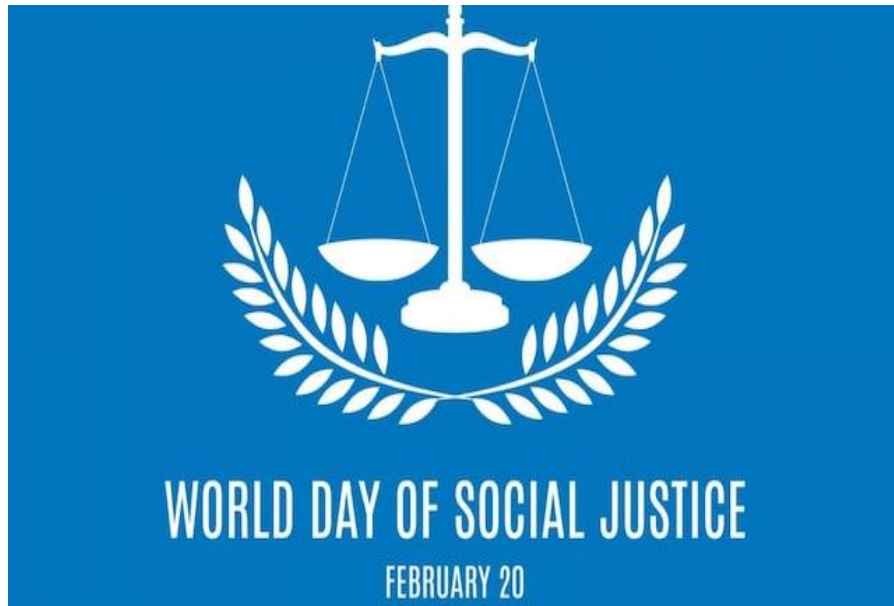


## **IMPORTANT DAYS**

### **World Day of Social Justice 2025 - February 20**

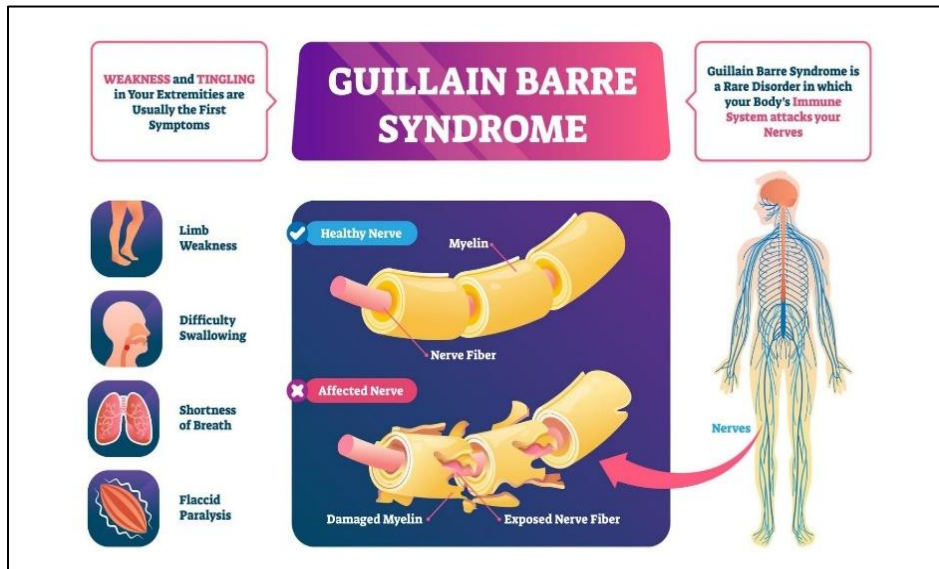
- ❖ The day is dedicated to the raising awareness about social injustice and breaking down barriers based on gender, racism, inequality, religious discrimination, etc.

- ❖ It also emphasises global societal injustices and explores potential solutions and improvements.
- ❖ The theme for 2025 is 'Empowering Inclusion: Bridging Gaps for Social Justice'.



## MISCELLANEOUS

### Guillain-Barre Syndrome (GBS)

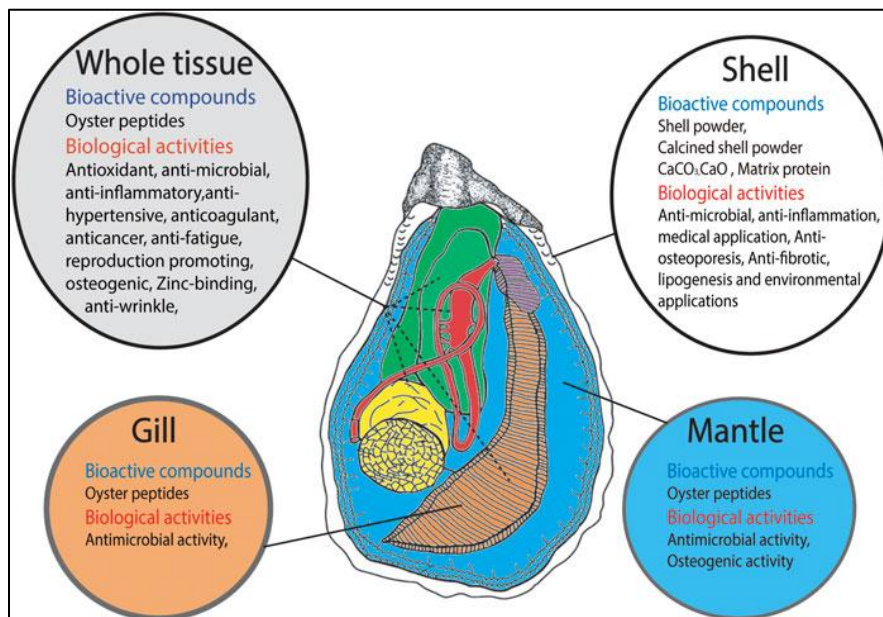


- ❖ The fatality counts due to suspected Guillain-Barre Syndrome (GBS) continue to rise in Pune, Maharashtra.

- ❖ The analysis confirmed the presence of coliform, E. coli, Norovirus and C. Jejuni bacteria in these regions.
- ❖ Guillain-Barre syndrome is a condition where the immune system attacks the nerves, potentially causing weakness, numbness, or paralysis.

### Oysters' Antimicrobial Properties

- ❖ Antimicrobial proteins isolated from oyster hemolymph (the equivalent of blood) can kill certain bacteria responsible for a range of infections.
- ❖ The proteins can also improve the efficacy of conventional antibiotics against the problematic bacteria species.
- ❖ Oysters are exposed to the high concentrations of diverse microorganisms in their natural marine environment.
- ❖ Because of this, they have evolved strong immune defences.
- ❖ The antimicrobial proteins in the hemolymph of Sydney rock oysters (*Saccostrea glomerata*) are particularly effective at killing *Streptococcus* spp. bacteria.



### Women Billionaires Global List 2025

- ❖ The Walmart founder Sam Walton's daughter, Alice Walton topped in the list with \$112.5 billion.
- ❖ Francoise Bettencourt Meyers and Family ranked 2<sup>nd</sup> in the list.
- ❖ Julia Koch and Family ranked 3<sup>rd</sup> with \$74.2 billion.

- ❖ India's richest woman, Savitri Jindal & family, has been ranked at 7<sup>th</sup> place with 32.3 billion USD.

Rank	Name	Net Worth (USD)	Source of Wealth
1	Alice Walton	\$112.5 billion	Walmart
2	Francoise Bettencourt Meyers and Family	\$74.4 billion	L'Oréal
3	Julia Koch and Family	\$74.2 billion	Koch Industries
4	Jacqueline Mars	\$42.3 billion	Mars Inc
5	Rafaela Aponte-Diamant	\$39.0 billion	Mediterranean Shipping Company (MSC) Group
6	Abigail Johnson	\$36.0 billion	Fidelity Investments
7	Savitri Jindal & family	\$32.3 billion	JSW Group
8	MacKenzie Scott	\$32.3 billion	Amazon
9	Miriam Adelson & family	\$31.5 billion	Las Vegas Sands
10	Marilyn Simons & family	\$31.0 billion	Hedge Funds

