FORTUNE
Prelims Precise

OCTOBER 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
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Rank 36
Arya V M
2023

Rank 45
Safna Nazarudeen
2020

Rank 49
Renjina Mary V
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Dr. Arun S Nair
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Alfred O V
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Rank 66
Arjun Mohan
2019

Rank 81
Malini S
2023

Rank 92
Devi Nandana
2020

Rank 99
Archana P P
2020

Rank 100
Kiran P B
2022

History & Culture

Bru Refugees

» Tripura HC granted **Bru Refugees voting rights after 25 years in Tripura.**

• The Bru, or Reang, community is indigenous to the Northeast, primarily residing in **Tripura, Mizoram, and Assam.**

• They faced displacement and persecution due to ethnic conflicts with the Mizo tribe in Mizoram, with over 40,000 fleeing to Tripura in 1997.

• In Tripura, they are recognized as a **Particularly Vulnerable Tribal Group (PVTG),** speaking the **"Kaubru" language**, a dialect of **Kok-Borok** with tonal influences from **Kuki**.

• In **January 2020, a quadripartite agreement** between the Central government, the governments of Tripura and Mizoram, and representatives of Bru refugees aimed to permanently settle them in Tripura was signed.

Ram Leela Folk Tradition

» Ram leela performance was organised in many parts of India during the **Navratri celebrations**.

• Ram leela is a **dramatic re-enactment of Tulsidas's Ramcharitmanas**, telling the **story of Lord Ram with dialogues and music.**

• Performances last **10 to 30 days** and **culminate on Dussehra with the burning of the effigy of Ravan, representing the victory of good over evil.**

• **UNESCO** recognized Ram leela as an **Intangible Cultural Heritage** in **2008.**

Palam Baoli Inscription
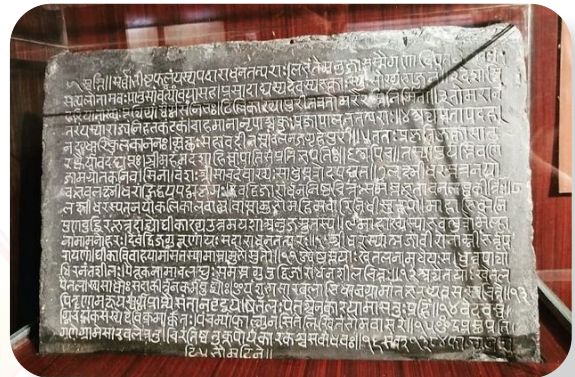
• The Palam Baoli inscription is a **Sanskrit inscription** believed to be at the time of **Ghiyasuddin Balban** from a stepwell in Palam village of Delhi.

• It mentions that " **the land of Haryanka was first enjoyed by the Tomaras and then by the Chauhanas. It is now ruled by the Saka kings"** (Slave dynasty kings were locally known as Saka kings at that time).

• **Name of Delhi is mentioned as Dhillipura and Yoginipura** in the description and it also contains the **list of all rulers of the Slave dynasty till Balban.**

Dogra Architecture & Maharaja Gunj Market

» A project to revive the lost glory of Maharaja Gunj market and its Dogra architecture due to encroachments is underway in Jammu and Kashmir.

• The **Dogra Architecture** was introduced by the **Dogra Hindu kings** who ruled over **Jammu and Kashmir** from **1846 to 1947.**

- The **Dogra dynasty** was founded by **Maharaja Gulab Singh**, who was a **vassal of the Sikh Empire** and later became an **ally of the British.**

- Key features include use of **local materials, sloped roofs, symmetrical designs, courtyards, carved wooden elements like balcones, doors** etc.

- Other examples: **Amar mahal palace, Mubarak Mand.**

- The **Maharaja Gunj market** was established by **Maharaja Ranbir Singh** to boost trade and commerce in Kashmir.

Panamalai Paintings

» The 1,300-year-old Pallava period paintings at **Talagirishwara temple** in Panamalai, Villupuram district, TN, have suffered from years of neglect.

- Similar to the artwork found in **Ajanta and Chithannavasal,** these paintings bear a striking resemblance.

- Commissioned by **Pallava king Narasimhavarman II (reign 690-725CE)**, also known as Rajasimha, the temple features a notable depiction of Lord Shiva with eight hands dancing, known as **Latathilagabhani**, while Goddess Parvathi observes.

- These paintings, which **predate those at Chithannavasal**, were created by covering the stonewalls with a paste made of limestone and sand.

Pichwai Paintings
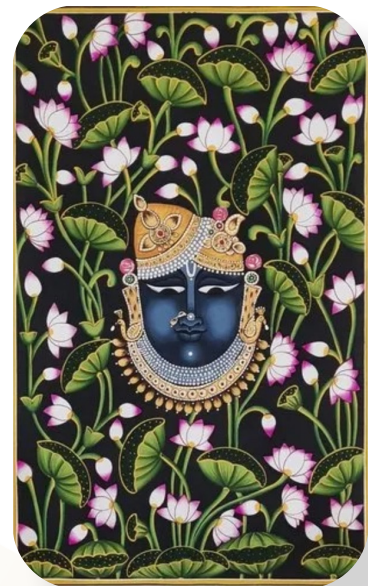
» The Chennai hosted an art exhibition showcasing Pichwai paintings of Rajasthan, some of which date back **350 years**.

- The Pichwai Paintings originated in the **town of Nathdwara near Udaipur, Rajasthan.**

- The **theme of the paintings** include stories and legends of **Lord Krishna**.

- The **artists use stone pigments**, especially for gold and silver tones.

- The **brighter orange, red, chrome yellow** and **kesari colours** come from vegetable dyes.

Vajra Mushti Kalaga

» Vajra mushti kalaga, a **nearly extinct martial art form of Mysore**, took place during **Dasara festivities in Karnataka**.

- It was popular during the **Vijayanagara era** (14-17th century CE).

- It literally means **Thunderbolt Fist**, is characterised by the **utilisation of a knuckleduster**, a small **metal weapon**.

- The main objective of this Indian martial art form is to **neutralise the opponent** and **counter his weapon.**

- Whosoever draws the blood from the opponent's head first is declared the winner.

Banni Festival

» Despite the **2008 Supreme Court ban**, the traditional Banni festival took place at Devaragattu in Kurnool district, **Andhra Pradesh.**

• This **Vijayanagar era** stick-fighting festival is held on the **night of Dussehra (Vijaya Dasami)** annually, commemorating the triumph of **Lord Mala Malleswara Swamy and Goddess Parvati over the demonish Mani and Mallasura.**

• Participants from various villages form two teams, with one team representing the **demons attempting to seize the idols from the other**, leading to a vigorous battle known as the Banni Fight.

• Devotees engage in the fight wielding **long sticks or lathis,** aiming primarily for headshots.

Kati Bihu

» Recently, the Prime Minister of India extended best wishes on the auspicious occasion of Kati Bihu to the people of Assam.

• **Kati means to cut** and this day marks the time of relocation of rice seedlings.

• It is also known as **Kongali Bihu. (Kongali means poor).**

• There are another **two Bihu festivals celebrated in Assam** - **Bhogali or Magh Bihu** is observed in January and **Rongali or Bohag Bihu** is observed in the **month of April**.

Mysuru Dasara

• It is a 10-day festival that commences with **Navratri** and concludes during the **Vijayadashami**.

• It is the state festival or **Naada Habba of Karnataka.**

• The festival is observed to celebrate the victory of **Goddess Chamundeshwari of Chamundi Hills (Durga) against Mahishasura.** The slaying of the Mahishasura gave the city the name **Mysore**.

• This **Vijayanagar era** festival finds mention in the works of Persian ambassador **Abdur Razzaq.**

Event of the Month

One on One Sessions with former UPSC Chairman Prof. DP Agrawal

Fortune Interview Mentorship Programme 2023

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Polity & Governance

Ethics Committee

» Ethics committee summoned TMC MP Mahua Moitra on cash-for-query charges.

• The Ethics Committee is responsible for **overseeing and maintaining the moral and ethical code of members of Parliament**.

• The ethics panel is bound by the **Rules applicable to the Committee of Privileges.**

• Each House of the parliament has its own ethics committee.

Ethics Committee in Lok Sabha

➡ In 2000, speaker GMC Balayogi constituted an **ad hoc Ethics Committee**, which became a **permanent part of the House in 2015.**

➡ Its members, **not exceeding 15 in number**, are **appointed by the Speaker for a period of one year.**

Ethics Committee in Rajya Sabha

➡ The then **Vice President** (and Rajya Sabha Chairman) K R Narayanan constituted the **Ethics Committee of the Upper House on March 4,1997** and it was **inaugurated in May 1997.**

➡ It consists of **10 members appointed by the Chairman.**

Procedure for complaint:

➡ **Any person** can complain against a **Member of Parliament** through **another Lok Sabha MP,** along with **evidence** of the alleged misconduct, and an **affidavit.**

➡ If a **Member of Parliament is the complainant**, then the **affidavit is not needed.**

➡ The **Speaker can refer** to the **Committee any complaint against an MP**.

➡ The Committee makes a **prima facie inquiry** before deciding to examine a complaint. It makes **recommendations after evaluating the complaint.**

➡ The Committee **presents its report to the Speaker** which may be discussed and voted in the house.

Automated Permanent Academic Account Registry

» Several state governments are requesting parental consent for the introduction of the **Automated Permanent Academic Account Registry (APAAR).**

• APAAR is part of the **'One Nation, One Student ID'** program from the **2020 National Education Policy.**

• It provides a **lifelong student ID, streamlining academic tracking from pre-primary to higher education.**

• It **securely stores documents** like exam results and **facilitates seamless data transfer** when students change schools as all their data in the **Academic Bank Credit (ABC)** will seamlessly migrate to the new school simply by sharing the APAAR ID.

• Concerns have been raised about sharing Aadhar details due to privacy fears.

Sreshta Scheme

» The **Ministry of Social Justice and Empowerment** has launched the **'Scheme for Residential Education for Students in High Schools in Targeted Areas' (SHRESHTA).**

• This initiative aims to offer **high-quality education to Scheduled Caste (SC) student**s.

• Currently, approximately 3000 SC students from families with an **annual income limit of 2.5 lakhs** are admitted to top private residential schools affiliated with CBSE/State Boards for classes 9th to 12th.

• Eligible students, studying in **class 8th and 10th, undergo selection via the National Entrance Test for SHRESHTA (NETS)** conducted by the National Testing Agency (NTA).

National Company Law Appellate Tribunal (NCLAT)

» The Supreme Court recently initiated **contempt proceedings against NCLAT** for defying its orders.

• NCLAT is a **quasi-judicial body appellate tribunal** constituted under the **Companies Act, 2013.**

- It hears appeals against the orders of the **National Company Law Tribunal(NCLT)** when it adjudicates under Companies Act and Insolvency and Bankruptcy Code (IBC), 2016,

- It hears appeals against the orders of **Indian Insolvency and Bankruptcy Board of India** under Insolvency and Bankruptcy Code, the orders of **Competition Commission of India (CCI)** and the **National Financial Reporting Authority (NFRA)** under respective Acts.

- The NCLAT includes a **Chairperson, 3 judicial members, and 2 technical members**. It consists of a total of not more than eleven members.

- Any person aggrieved by any order of the NCLAT may file an appeal to the **Supreme Court.**

Operation Chakra

» Recently the **Central Bureau Of Investigation** launched **Operation Chakra II.**

- In October 2022, the CBI had conducted Operation Chakra 1, along with **Interpol, FBI, and police of multiple countries** aimed at curbing the growing menace of **high-tech frauds and scams.**

- Operation Chakra 2, is a major crackdown **targeting cyber-enabled financial crimes across India.**

Armed Forces Tribunal (AFT)

» Recently, the **Punjab and Haryana High Court** has issued notice to a senior Defence Ministry official on a contempt petition for not complying with an order of the Armed Forces Tribunal (AFT) regarding Pension benefits.

- AFT is a **statutory body** set up under the **Armed Forces Tribunal Act, 2007** as per the recommendation of the **Law Commission's 169th report (1999).**

- The **Principal Bench is located in New Delh**i and has **10 Regional Benches**.

- The Tribunal is composed of **Judicial Members (retired High Court Judges)** as well as **Administrative Members (Major General/ equivalent)**.

- It has both **Original and Appellate Jurisdiction** and has the power to grant bail to an accused who is in military custody.

- It is empowered to **adjudicate appeals against any order, decision, finding or sentence passed by a court-martial.**

- The Supreme Court in March 2023, restored the jurisdiction of **High Courts to hear appeals challenging the judgements of the AFT.**

Territorial Army

» Recently, the Territorial Army recruited **Mandarin experts for border talks with China**.

- The Territorial Army **is a part of the Regular Army.**

- Its primary role is to **relieve the Regular Army from static duties and assist Civil Administration** in dealing with natural calamities or when the security of the country is threatened.

- Any citizen aged between 18-42 is eligible to join the Territorial Army of India.

- They act as a **second line of defence** after the regular army and provide units for Regular Army as and when required.

- **Territorial Army Act was passed in 1948**, and the Territorial Army was inaugurated on 09 October 1949 also celebrated as the Territorial Army Day

- **Mandarin** comprises a collection of Chinese language variants predominantly spoken across northern and southwestern regions of China.

Caste Survey

» The **Bihar Government** has released the results of its recently concluded **survey of castes in the state**, which reveals that Other Backward Classes (OBCs) and Extremely Backward Classes (EBCs) constitute more than 63% of the population of Bihar.

- Caste census usually means the **inclusion of caste-wise tabulation of population in the census exercise.**

- **Caste wise enumeration of the population** was introduced under the **British colonial administration in 1881** and continued only till the **1931 census.**

- Every census in independent India from **1951 to 2011** has published **data on Scheduled Castes and Scheduled Tribes, but not on other castes.**

- **Since census comes in the Union list of powers,** the Bihar state's enumeration was under the title of Caste survey to fill the lack of data on Backward castes and classes.

Economy

Bima Vahaks

» The **Insurance Regulatory and Development Authority of India (IRDAI)**, recently released norms for the Bima Vahaks.

- Bima Vahak is **a dedicated women-centric insurance distribution channel** to reach out to every Gram Panchayat as part of **'Insurance for all by 2047' goal of IRDAI.**

- **'Bima Vahak'** would be tasked to sell and service simple insurance products. It would be similar to the banking correspondents present in rural banking.

- This program plays a **critical role as the final link between insurers and customers**.

Agartala–Akhaura project

NEW SECTION INAUGURATED
12.24-km Length of Agartala-Akhaura rail rail link
₹1255.1 cr Total Cost of the Project

BANGLADESH — AGARTALA-AKHAURA RAIL LINK
Akhaura, Dhaka, Agartala, Tripura, Petrapole, Existing Bangladesh Railway line, Kolkata, Chattogram, INDIA, BAY OF BENGAL
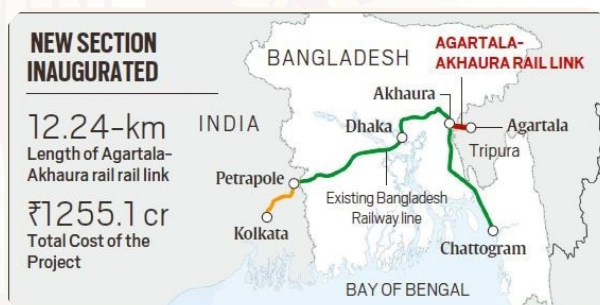
» Recently, Prime Minister **Narendra Modi** and his Bangladesh counterpart **Sheikh Hasina** virtually inaugurated the Agartala-Akhaura **cross-border rail link.**

- The rail link connects **North-east India with Bangladesh**.

- The **entire project cost is funded by India**.

- The work on the Indian side was funded by the **Ministry for Development of North East Region (DoNER)**, while the **Ministry of External Affairs (MEA)** funded the expense for the Bangladesh side as a grant.

- The work on the Indian side was done by the Indian Railway Construction International Limited (IRCON), a Public Sector Undertaking (PSU) under the Indian Railways, and on the Bangladesh side, by Texmaco, a private Indian firm.

Central Road and Infrastructure Fund (CRIF)

» Recently, the union government announced the **Setu Bandhan Scheme** for seven bridge projects in Arunachal Pradesh, utilising funds from the **Central Road and Infrastructure Fund (CRIF) - statutory fund.**

- **The Central Road Fund (CRF)** was launched in 2000. It was a **cess imposed along with excise duty on petrol and diesel.**

- CRF revenue was used for – the **National Highway Development Project (NHDP)** and the **Pradhan Mantri Gram Sadak Yojana (PMGSY).**

- In the budget of 2018, government created **Central Road and Infrastructure Fund (CRIF) replacing CRF** by amending the **Central Road Fund Act, 2000.**

- Now the proceeds of the road cess under CRIF will be used to finance other infrastructure projects like waterways, railway infrastructure and social infrastructure (education institutions, medical colleges etc.).

- A Committee headed by the **Finance Minister** decides on the share of each infrastructure area and projects from the CRIF.

Setu Bandhan Scheme

- It falls under the **Ministry of Road Transport and Highways.**

- It aims to improve **inter-state connectivity**, especially in rural areas at the borders and plans to replace railway line Level Crossings (LCs) with Road Over Bridges (ROBs)/Rail under Bridges (RUBs)

Remission of Duties and Taxes on Exported Products (RoDTEP) Scheme

» The **Union Government recently extended export benefits** under the RoDTEP scheme for one more year.

- The RoDTEP scheme is a **flagship export promotion scheme** of the **Ministry of Commerce and Industry.**

- It seeks to **refund to Indian exporters central, state and local duties and levies including all embedded taxes, taxes on fuel, toll tax and stamp duty on import-export documentation** etc, that were so far not been rebated or refunded.

- Launched in **January 2021** it is the **replacement for the Merchandise Export from India Scheme (MEIS).**

Background

✓ The US had challenged India's key export subsidy schemes in the WTO and a dispute panel in the WTO ruled against India stating that the **export subsidy programmes by India violated the provisions of WTO norms.**

✓ The panel recommended that the export subsidy programmes be withdrawn. This led to the birth of the RoDTEP scheme so as to ensure that India stays WTO compliant.

Key features of RoDTEP scheme

✓ The **tax refund rates range from 0.5% to 4.3%** for various sectors.

✓ The rebates will be issued in the form of a **transferable duty credit or electronic scrip (e-scrip)** which will be maintained in an **electronic ledger** by the **Central Board of Indirect Taxes and Customs (CBIC)**

✓ **A scrip is a substitute or alternative (usually in the form of a certificate) to legal tender, i.e. currency.** Holding an e-scrip here entitles the bearer to receive refunds in return

✓ All exporters of goods are eligible to take benefit under the scheme.

Vizhinjam International Seaport Limited

- **Zhen Hua 15**, a Chinese cargo ship was docked at the Vizhinjam International Deepwater Multipurpose Seaport in Kerala.

- Vizhinjam Seaport is a **transhipment deepwater multipurpose seaport** built under a **Public Private Partnership (PPP) model** with **Adani Ports Private Limited** at Vizhinjam in Kerala.

- The Kerala government formed a separate company called **Vizhinjam International Seaport Limited (VISL)** as a **special purpose government company to develop the port.**

Significance

- The port has several advantages such as **availability of a 20m contour within one nautical mile from the coast, minimal littoral drift along the coast, proximity to the international shipping routes** etc.

- The port is expected to compete with **Colombo, Singapore and Dubai for a share of trans-shipment traffic.**

Electronic Status Holder Certificates (e–SHC)

- The **Ministry of Commerce and Industry** has launched an initiative for **electronic Status Holder Certificates (e-SHC).**

- These certificates **recognize business leaders excelling in international trade**, benefiting from **advantages** like global credibility, 24X7 customs clearance, priority consignment handling, and exemption from bank guarantees.

- Previously, exporters **had to apply manually or online** to the **Directorate General of Foreign Trade (DGFT)** for the certification.

- The e-SHC eliminates this need, as **recognition will be automatically provided** based on available export data and risk parameters

Minimum Export Price (MEP)

- The **Government recently imposed a minimum export price (MEP) of $800 per tonne (Rs. 67 per kg) on onions** until December 31, 2023, in response to rising retail prices ranging from ₹65-80 per kilogramme.

- MEP serves as a threshold **below which exporters are prohibited from exporting commodities from India.**

- It aims to curb domestic price increases and bolster domestic supply. MEP was **first applied to basmati rice in Fiscal Year 2011** and is enforced through **notifications issued by the Director General of Foreign Trade (DGFT).**

- Decisions on MEP are typically **made at the Cabinet level**, following requests from relevant ministries such as Agriculture, and are **not formula-based impositions.**

- **Legal backing** Section 5 of the Foreign Trade (Development And Regulation) Act, 1992, empowers the Central Government to formulate and announce the export and import policy.

Penny Drop Verification

- Recently, the **Pension Fund Regulatory and Development Authority (PFRDA)** mandated **penny drop verification for National Pension System (NPS) fund withdrawals** by subscribers.

- Penny drop verification involves **depositing a small amount (usually INR 1) into the subscriber's bank account to validate its authenticity** and ensure operational status.

- This measure aims to prevent payment transfer issues and verify the alignment of the bank account name with the Permanent Retirement Account Number.

- The verification process will be conducted by **Central Recordkeeping Agencies (CRAs).**

- **CRA is a government agency** that performs recordkeeping, accounting, administration, and customer service functions for subscribers to schemes.

International Relations

Global Preparedness Monitoring Board (GPMB)

» The GPMB Report, **'A Fragile State of Preparedness,'** highlights weaknesses in pandemic preparedness across the world.

• Established in 2018, GPMB is an **independent body** monitoring global health crises, jointly operated by **WHO and the World Bank**.

• Composed of diverse experts, it was **formed after the Ebola epidemic**.

• Its **4 Key priorities** include **strengthening monitoring, equitable research and development, reforming global financing, and enhancing engagement**.

Global Girlhood Report 2023

» **Save the Children** (UK based NGO) released the 'Global Girlhood Report' 2023 titled **"Girls at the Centre of the Storm — Her planet, her future, her solutions."**

• Key findings show a projected **33% increase in girls at risk of climate change** and **child marriage** by **2050**.

• A 10% change in **rainfall is linked to a 1% change in child marriage** globally.

• **Recommendations** include prioritising gender equality in climate action, investing in anticipatory measures for girls, and supporting girls' decision-making.

• **Nations investing in girls' education experience lower mortality rates** from climate-related disasters.

International Criminal Court (ICC)

» **Human Rights Watch, an international NGO**, wrote a letter to the ICC prosecutor asking about its mandate in the current Gaza conflict.

• The International Criminal Court (ICC) is the **world's first permanent international criminal court**.

• It was established under the **Rome Statute** to investigate and prosecute individuals for genocide, war crimes, crimes against humanity, and the crime of aggression.

• **Operational since July 1, 2002**, the ICC has jurisdiction over crimes committed after this date and is recognized by 123 countries.

• **India, the US, China and Israel are not party to the Rome Statute. In 2015, ICC recognised Palestine as a member.**

• Headquartered in The **Hague, Netherland**s, the ICC comprises **four organs: Presidency, Judges, Office of the Prosecutor (OTP), and Registry.**

• Its jurisdiction covers crimes **committed by State Parties or within their territories**, as well as cases **referred by the UN Security Council** or initiated **suo-motu.**

• Unlike the International Court of Justice, the **ICC prosecutes individuals and not Governments.** It complements national criminal systems, intervening when national courts are unable or unwilling to genuinely prosecute cases.

• ICC later clarified that it is carrying out a Palestinian investigation.

Global Maritime Summit 2023

» Prime Minister Narendra Modi **inaugurated the 3rd edition of the Global Maritime India Summit 2023 in Mumbai** via video conferencing.

• The summit aims to gather industry leaders to discuss opportunities, challenges, and investments in India's maritime sector.

• **Ministers from various regions** including Europe, Africa, South America, Asia, and the BIMSTEC region participated.

• The summit is the **biggest Maritime Event in the country.** The first Maritime India summit was held in **2016 at Mumbai.** The Second Maritime Summit was held virtually in 2021.

Global Declaration of River Dolphins

» 11 Asian and South American countries recently signed a global declaration, the "**Global Declaration for River Dolphins**".

- It aims to **halt the decline of all river dolphin species**.

- River dolphins are any of **six species** of small, usually freshwater aquatic mammals that are related to whales (Order Cetacea).

- The six surviving species of river dolphins are the **Amazon, Indus, Ganges, Irrawaddy, Tucuxi, and Yangtze finless porpoises. All except Yatgtze (Critically endangered) are categorised as endangered by IUCN.**

- **Yangtze** is a freshwater porpoise but included under River Dolphins.

- The **Amazon river dolphin**, also known as the **pink river dolphin or boto** is the largest river dolphin.

- The Chinese river dolphin, or baiji, was declared extinct in 2007.

- Countries that adopted the declaration include **Bangladesh, Bolivia, Brazil, Cambodia, Colombia, Ecuador, India, Nepal, Pakistan, Peru, and Venezuela.** In addition to these, **Indonesia, China and Myanmar** also have River Dolphins.
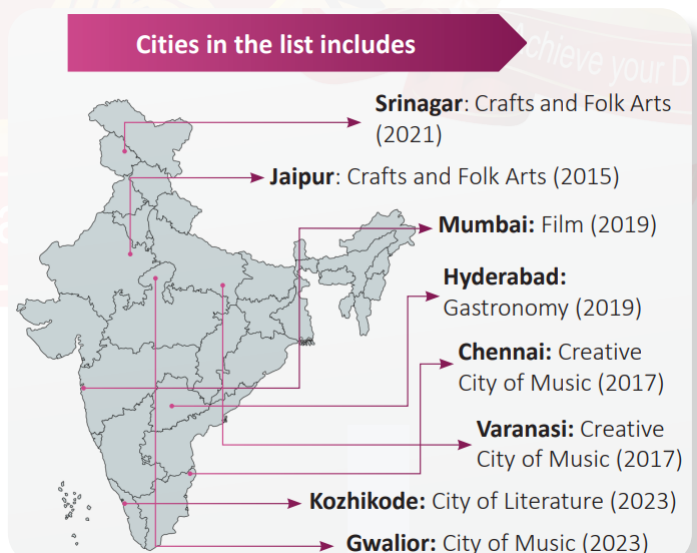
Sakharov Prize for Freedom of Thought

» The **European Union (EU) awarded** the Sakharov Prize for Freedom of Thought jointly to **Mahsa Amini,** whose death sparked widespread protests and its 'Women, Life, Freedom' movement in Iran .

- The Sakharov Prize, established by the European Parliament in **December 1988, is named after Russian scientist and dissident Andrei Sakharov.**

- It serves as an honorary award for individuals or groups **dedicated to defending human rights and freedom of thought.**

- The inaugural prize was jointly awarded to **Nelson Mandela** and Russian human rights activist **Anatoly Marchenko.**

United Nations Convention Against Transnational Organised Crimes (UNTOC)

» The Union Minister of State for Home Affairs recently attended the two-day UN Convention against Transnational Organised Crime Ministerial Conference in Palermo, Italy.

- This **convention, commonly known as the Palermo Convention**, is a multinational treaty established by the **United Nations in 2000** to combat transnational organised crime.

- It boasts **147 signatories and 190 parties. India signed the convention and its three protocols in 2002.**

- The **Central Bureau of Investigation (CBI)** serves as the nodal agency for all matters related to the UN Convention against Transnational Organized Crime (UNTOC).

Creative Cities Network (UCCN)

» **Kozhikode** has been designated as the **'City of Literature'** and **Gwalior** as the **'City of Music'** under **UNESCO Creative Cities Network (UCCN.**

- UCCN was created in 2004 to promote cooperation with and among cities that have identified creativity as a strategic factor for sustainable urban development.

- The Network covers seven creative fields: **Crafts and Folk Art, Media Arts, Film, Design, Gastronomy, Literature and Music.**

- There are 350 creative cities in the network, in more than 100 countries.

Cities in the list includes

Srinagar: Crafts and Folk Arts (2021)

Jaipur: Crafts and Folk Arts (2015)

Mumbai: Film (2019)

Hyderabad: Gastronomy (2019)

Chennai: Creative City of Music (2017)

Varanasi: Creative City of Music (2017)

Kozhikode: City of Literature (2023)

Gwalior: City of Music (2023)

International Competition Network (ICN)

» The **Competition Commission of India (CCI)** has joined the 1**8-member steering group of the International Competition Network (ICN).**

• ICN was **established in 2001** as the sole global entity dedicated to fostering cooperation among competition law enforcement agencies.

• With 140 member competition agencies, **ICN offers an informal platform** for these authorities to engage regularly and **tackle practical competition issues,** lacking a formal Secretariat.

• **Steering group membership lasts two years,** and India, a member since 2009, hosted the ICN Annual Conference in 2018.

Social Security Agreements (SSAs)

» Recently, Argentina became the **21st nation** to sign a SSA with India.

• It is signed with other countries in order to protect the **interests of Indian professionals / skilled workers** working abroad for short durations and enhance the competitiveness of Indian companies.

Benefits

▱ Avoiding making double social security contributions by the workers.

▱ Easy remittance of benefits.

▱ Aggregating the contribution periods (in two countries) to prevent loss of benefits.

▱ Disability insurance benefits to the Indian nationals working abroad.

Indian Ocean Rim Association (IORA)

» External Affairs Minister Dr. S. Jaishankar (EAM) attended the 23rd Council of Ministers' (COM) meeting of the Indian Ocean Rim Association (IORA) held in Sri Lanka.

• IORA is an **inter-governmental organisation** which was established in 1997.

• It was formerly known as the **Indian Ocean Rim Initiative and the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC).**

• The IORA **Secretariat** is based in **Mauritius.** It became an **observer to the UN General Assembly and the African Union** in 2015.

• It has **23 Member States** (including India) and 11 Dialogue Partners.

The 8 Priority Areas of Indian Ocean Rim Association include:

✚ **Maritime Safety and Security**

✚ **Trade and Investment Facilitation**

✚ **Fisheries Management**

✚ **Disaster Risk Management**

✚ **Tourism and Cultural Exchanges**

✚ **Academic, Science and Technology Cooperation**

✚ **Blue Economy**

✚ **Women's Economic Empowerment**

Operation Al-Aqsa Flood vs. Operation Iron Swords

» Hamas, a Palestinian political and militant group, launched a series of coordinated attacks called **Operation Al Aqsa Flood** in Israel. The Israel Defence Force launched '**Operation Iron Swords'** in retaliation.

Al Aqsa Flood

➡ The attacks took place on **Simchat Torah**, a holiday which falls towards the conclusion of the weeklong **Jewish festival known as Sukkot** (the Feast of Tabernacles).

➡ This was the most serious escalation by Hamas since their **11-day war in 2021.**

Operation Iron Swords

➡ Launched by **Israel against Hamas** in the Gaza Strip using multiple fighter jets, in retaliation which involved tackling a huge barrage of rockets by the **Iron Dome.**

Iron Dome

➡ Its **anti-missile system** is a **land-based air defence system** that is designed to intercept and destroy short range rockets,

mortars, and artillery shells fired from distances of **4 kilometres to 70 kilometres**, as well as aircraft, helicopters, and **UAVs at very short range.**

➡ It has been in operation since 2011 and has been successful in intercepting a significant number of rockets fired at Israel, particularly from the **Gaza Strip.**

India – EU Maiden Naval Exercise

» Recently, India and EU ships conducted joint activities in the **Gulf of Guinea** (GOG).

• This is India-EU's **first joint naval exercise**.

• The exercise was followed by a knowledge sharing session in Accra, Ghana and these activities underlined the 2013 **Yaounde Architecture for Maritime Security (YAMS)**.

• **The Yaounde Architecture** signed by African nations and the Gulf of Guinea Commission seeks to prevent and prosecute illicit activities in the waters of the Gulf of Guinea.

• The **Gulf of Guinea has 35% of the world's petroleum reserves** and lies at the junction of the **Prime Meridian and the Equator at 0°0'N and 0°0'E.** It is notorious for piracy.

Bletchley Declaration

» The UK government recently hosted the **inaugural AI Safety Summit at Bletchley Park**, famed for its role in World War II codebreaking **led by Alan Turing.**

• Representatives from **28 nations and institutions, including the USA, India, China, France, Japan, the Alan Turing Institute, OECD, and the EU,** participated.

• The summit produced a declaration emphasising the **potential for "crucial and catastrophic harm" posed by advanced AI models** and advocated for international cooperation and risk-based policy development.

• Discussion centred on the implications of rapid advancements in general-purpose AI models, termed **'Frontier AI'.**

Note: "Frontier AI" is defined as highly capable general-purpose AI models that can perform a wide variety of tasks and match or exceed the capabilities present in today's most advanced models. **E.g.** Large language models (LLMs) like ChatGPT, Claude, and Bard.

Environment & Ecology

World Energy Outlook Report

- The **International Energy Agency's** World Energy Outlook 2023 report highlights key findings and recommendations:

Key Findings:

- *(* **Global fossil fuel demand** is expected to peak by **2030**.

- *(* Existing and developing government policies could **raise global temperatures by approximately 2.4°C.**

- *(* Clean energy and infrastructure investments amount to $1.8 trillion, surpassing fossil fuel investments.

India's Situation:

- *(* India's energy sector transformation, particularly in power generation and clean cooking access, is praised.

- *(* Rising energy demand in India is expected to increase oil and natural gas usage, leading to higher emissions.

Recommendations:

- *(* **Increase clean energy investment** in emerging economies by **$3.2 trillion to $4.7 trillion by 2030.**

- *(* **Triple renewable energy capacity and reduce methane emissions from** fossil fuels by **75%.**

- *(* Ensure a **gradual decline in fossil fuel use.**

- *(* Balance investments in **grid expansion, low-emission fuels, and carbon capture technologies** alongside solar, wind power, and electric vehicles.

- *(* Boost **investment in mining and extractive processes.**

Solar Net Metering

- » Residents in **Puducherry** who chose Solar Net Metering are frustrated by the slow implementation of the rooftop solar project.

- Solar Net Metering **allows solar energy system owners to receive credits for the electricity they contribute to the grid,** granting consumers control over their electricity bills and encouraging renewable energy adoption.

- Solar PV cells generate energy to **meet immediate needs, reducing electricity bills, and any surplus power is exported to the grid**. This promotes clean energy production, reduces carbon footprint, and lessens reliance on conventional energy sources.

2nd Global Amphibian Assessment

- » A new study, based on the 2nd Global Amphibian Assessment (GAA2), revealed that climate change posed the greatest threat to amphibians.

- It is an initiative by the **Amphibian Red List Authority** since **2015.**

- **The Amphibian Red List Authority (ARLA) is a branch of the IUCN's Amphibian Specialist Group (ASG).**

- **The ARLA was established in 2009 to manage amphibian data on the IUCN Red List of Threatened Species.**

Key Findings

- **More than 300 amphibians** came closer to extinction, **between 2004 and 2022.**

- **41% of amphibians are globally threatened with extinction** making them the most threatened vertebrate group.

- Amphibians are unable to move very far to escape the climate change events.

Makhir Ginger

- » Trinity Saioo, the 2021 Padma Shri winner known as the "**Turmeric Trinity**," who was recognized for her work in promoting **Lakadong turmeric cultivation** in Meghalaya, is now focusing on promoting the unique "**Makhir" ginger** of the state.

- Makhir ginger, also known as **"Ing Makhir" or "Sying Makhir"** by the locals of Meghalaya, is an **indigenous ginger variety native** to the hilly terrains of Meghalaya.

- This ginger is known for its distinct pungency and medicinal properties.

Lakadong turmeric

- Under the **"One District One Product"** scheme, **Lakadong turmeric gained** recognition in the West Jaintia Hills district.

- It is distinguished by its **high curcumin levels and antioxidant properties**.

Green Ammonia

- » Recently, the V.O. Chidambaranar Port Authority in Tamil Nadu, India, successfully received and handled Green Ammonia Containers from **Egypt**.

- Green ammonia is ammonia that is produced using **renewable energy and hydrogen from water electrolysis**. This makes green ammonia production virtually **carbon dioxide-free.**

It can be used in

- ☞ **Fuel for engines** such as locomotives and shipping

- ☞ Fuel source for **electricity power generation**

- ☞ Building block to **make fertilisers for use in agriculture**

- ☞ **Feedstock for industrial and manufacturing applications** ranging from water purification to pharmaceuticals

Green drought

- » Recently, the **Karnataka government** announced that the state is facing a Green Drought.

- A green drought refers to a period when there is **limited rainfall due to which there is growth of new plants, but the growth is insubstantial.**

- In a green drought water **does not penetrate into deeper parts of the soil profile**.

- There is not enough rain to saturate the soil and generate either a downward flux of water from the soil profile or surface runoff to rivers.

Tilapia Parvovirus (TiPV)

- » Recently, India's **first tilapia parvovirus** was reported in farm-bred Tilapia fish in Tamil Nadu.

- Considered as **"a poor-man's fish"**, Mozambique tilapia was introduced to Indian fresh water bodies in the 1950s and it is called **Jilabi in Tamil.**

- Capable of **surviving in low-oxygen levels** in water, it has turned **invasive** across the country.

- **TiPV** was **first reported in China in 2019** and **Thailand in 2021**. India is the third country to report the occurrence of TiPV.

- This DNA virus caused **mortality ranging from 30 to 50%** in the farm and **100%** mortality in laboratory settings.

Geography

Marsquake

» Scientists recently revealed the reason for the 2022 Marsquake named '**S1222a**', the largest ever recorded in history.

• Marsquakes are **seismic events on the surface of Mars**.

• The reason for the recent event is said to be the release of enormous **tectonic stresses** within the planet, pointing out the possibility of Mars being **more seismically active** than we understand it to be.

• The tectonic stresses are the result of **billions of years of evolution** including the **cooling and shrinking** of different parts of the planet at different rates.

• **NASA's InSight lander** was instrumental in revealing the planet's mystery.

Glacial Lake Outburst Flood (GLOF)

• **Glacial Lake:** It is a **body of water that originates from a glacier.** It typically forms at the foot of a glacier, but may form on, in, or under it.

• GLOF refers to the flooding that occurs when the **water dammed by a glacier is released suddenly.**

• Glacial lakes are mostly dammed by **unstable ice or sediment composed of loose rocks and debris.** In case the boundary around them breaks, huge amounts of water rush down the side of the mountains, that would cause flooding in the downstream areas.

• GLOF can be triggered by several reasons including **earthquakes, extremely heavy rains and ice avalanches.**

• According to **National Disaster Management Authority (NDMA), glacial retreat due to climate change** occuring in the most parts of the **Hindu Kush Himalayas** has given rise to the formation of numerous new glacial lakes, which are the major cause of GLOFs.

Cyclone Tej and Hamoon

» Weather experts predict the rare occurrence of '**Twin cyclones', Cyclone Tej** and **Hamoon**, in the Arabian Sea and Bay of Bengal, akin to a phenomenon observed in 2018.

• **Cyclone Tej**, an Extremely Severe Cyclonic Storm, hit Yemen after forming in the **Arabian Sea**, while Tropical **Cyclone Hamoon** made landfall in Bangladesh after originating in the B**ay of Bengal.**

• **Twin cyclones** are **not rare,** resulting from the interaction between **wind, monsoon systems**, and the **Earth's dynamics**.

• **Equatorial Rossby waves** play a significant role in their formation. These waves, with **wavelengths of 4,000–5,000** kilometres, feature **vortexes in both the northern and southern hemispheres**, each mirroring the other.

• The **vortexes exhibit opposite spins:** counterclockwise with positive spin in the northern hemisphere and clockwise with negative spin in the southern hemisphere, **both possessing positive vorticity.**

State of Global Water Resources 2022

• Recently, WMO (World Meteorological Organization) has released its **annual State of Global Water Resources Report 2022.**

• The **aim of this annual report is to support monitoring and management of global freshwater resources** in an era of growing demand and limited supplies.

The report focuses on three major areas:

☛ **Streamflow**, the volume of water flowing through a river channel at any given time.

☛ **Terrestrial water storage (TWS)** — all water on the land surface and in the sub-surface.

☛ The **cryosphere (frozen water).**

• It states that the **Asian Water Tower (AWT), the vast network of high-altitude glaciers and snowpacks in the Himalayas and Tibetan Plateau regions, the world's largest reservoir of ice and snow** after the Arctic and Antarctic regions, **saw significant glacial melting in 2022.**

Recent Addition to the Geographical Indication (GI) Tag List

Item	State/UT	Description
Basohli Pashmina	Jammu & Kashmir	• It is a **hand-spun product** known for extreme softness, fineness and light-weight, has insulating properties and extended life. • Pashmina refers to a fine **variant of spun cashmere (the animal-hair fibre),** that is derived from the downy undercoat of the Changthangi. • It is obtained from a breed of **mountain goats (Capra hircus) found on the Changthang Plateau** in Tibet and parts of Ladakh.
Goan Cashews	Goa	• Goan cashew is derived from the Portuguese name 'caju' or 'kaju' in Konkani. • It has a **unique identity, flavour and taste.**
Udangudi Panangarupatti	Tamil Nadu	• The **karupatti** prepared from the palm sap from the region around Udangudi in Tiruchendur taluk in **Thoothukudi district** has some uniqueness. • The region's dry climate is also suitable for storage of karupatti for a longer duration. • No chemical additives like Triple super phosphate and phosphoric acid are used in its preparation.
Jaderi namakatti	Tamil Nadu	• These are **clay sticks that are white in colour,** usually available in **finger-like shape** with a smooth texture. • **Jaderi** is a small village in Tiruvannamalai district of Tamil Nadu. • It is used to adorn the **foreheads of idols, men, and temple elephants** as well as traditionally to treat stretch marks caused by childbirth.

Pontus Tectonic Plate

» A **long-lost tectonic plate** recently discovered in the **west Pacific Ocean**.

• Scientists rediscovered evidence of an **ancient mega-plate**, from a few rock fragments from the **mountains of Borneo**, that disappeared **20 million years ago**.

• **160 million years ago** it was once under the **Pontus Ocea**n and later got subducted beneath the **Australian plate**.

• It roughly equates to about a quarter of the size of the Pacific ocean.

Science & Technology

Disease X

»   Recently, the **World Health Organisation (WHO)** emphasised the urgent need for global preparedness against **a potential new pandemic**, referred to as 'Disease X'.

•   Disease X is a **potential disease that is yet to be discovered and can cause the next pandemic.**

•   It could be a new agent, a virus, a bacterium, or a fungus without any known treatment.

•   It is part of **WHO's priority diseases list** prepared for R&D in a public health emergency context.

•   According to WHO, it represents the knowledge that a serious international epidemic could be caused by a pathogen **currently unknown to cause human disease.**

Monoclonal Antibodies

»   Recently, **India reached out to Australia** to restock monoclonal antibody doses to combat the **Nipah virus.**

•   Antibodies are **proteins produced naturally by the immune system** that target a specific foreign object.

•   Monoclonal Antibodies are **proteins made in laboratories** that act like proteins called antibodies in our bodies.

•   They are made by cloning a specific **white blood cell.**

•   It binds only to the **same epitope** i.e. the part of an antigen that is recognized by the antibody.

•   They are designed to perform duties like they can be used to **carry drugs, toxins, or radioactive substances** directly to affected cells.

Psyche Mission
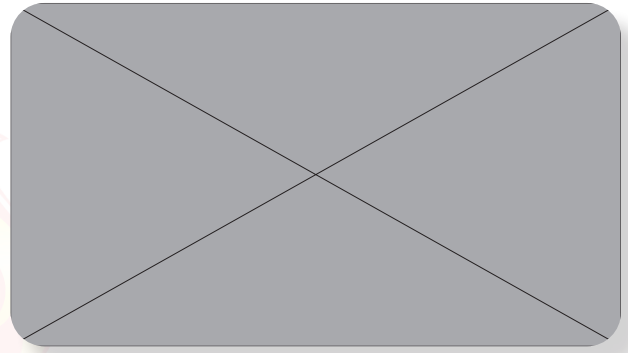
»   Recently, **NASA** has launched an **uncrewed spacecraft** to explore a metal-rich asteroid called the **16 Psyche.**

•   16 Psyche is the **heaviest known M-type asteroid**. Based on observations it may have **30 to 60%** of **nickel iron core.**

•   The asteroid is located in the main asteroid belt between **Mars and Jupiter.**

•   This is **NASA's first mission** to study an asteroid that has **more metal than rock or ice.**

•   **M-type asteroids** contain higher concentrations of metal phases (e.g. iron-nickel) than other asteroid classes, and are widely thought to be the source of iron meteorites.

Fast Radio Bursts (FRB)

»   Recently, the **Australian Square Kilometre Array Pathfinder telescope** detected FRB 20220610A, estimated to be **8 billion years old, but its origin remains unknown.**

•   Fast Radio Bursts (FRBs) are **brief flashes of light lasting milliseconds,** similar to radiation from cell phones or microwaves but originating from distant cosmic sources.

•   Since their discovery in 2007, 140 more FRBs have been found.

•   Potential sources include **superdense neutron stars or magnetars, although their exact origins are still uncertain.**

•   Studying FRBs offers insights into the universe's origins.

Radiation Detection Equipment (RDE)

» India will install Radiation Detection Equipment (RDE) at its borders, specifically at **Integrated Check Posts and land ports including Attari (Pakistan), Petrapole, Agartala, Dawki, and Sutarkandi (Bangladesh), Raxaul and Jogbani (Nepal), and Moreh (Myanmar).**

• This initiative aims to **combat trafficking of radioactive materials** across international borders.

• The RDE will be stationed in drive-through monitoring stations managed by the **Land Ports Authority of India**, overseeing trucks and their cargo.

• Equipped with **separate gamma and neutron radiation alarms**, the RDE can generate video frames of suspicious objects and distinguish between special nuclear material and naturally occurring radiation in items such as fertilisers or ceramics, as well as high-energy gamma isotopes characteristic of recycled uranium.

Land Ports Authority of India

○ The Land Ports Authority of India (LPAI) is a **statutory body** (created through the Land Ports Authority of India Act, 2010) working under the **Ministry of Home Affairs.**

○ It is responsible for **creating, upgrading, and maintaining and managing** border infrastructure in India.

○ It manages several **Integrated Check Posts (ICPs)** across borders of India.

Anti Freeze Flushes and Fuel Tanks

» The **Rail Coach Factory (RCF) in Kapurthala, Punjab** has developed indigenous solutions to **maintain water and fuel in liquid form in sub-zero temperatures**, particularly for the Udhampur-Srinagar-Baramulla Rail Link (USBRL) project connecting Kashmir to Kanyakumari.

• To prevent water freezing, **RCF designed double-walled composite insulated water tanks, ensuring liquid water for 16 to 20 hours**.

• Additionally, RCF **adopted heated pipes with distributed heating systems** to prevent freezing in supply pipelines, utilising technology from the defence services.

• **Geysers installed** at toilets' point of use minimise energy wastage by heating only the necessary amount of water.

David Sling Air Defence System

» Israel confirmed using its **David's Sling air-defence system** to intercept a Hamas rocket recently.

• It is an **Israeli medium-range air defence system** designed to **intercept ballistic and cruise missiles at ranges of 40 to 300 km.**

• It was to intercept the **Ayyash 250 rocket** — a two-year old weapon believed to be the longest-range rocket of Hamas with an operational range of up to 250 km.

• Co-developed with the United States, David's Sling is the middle layer of Israel's sophisticated air-defence network and is complemented by the **Iron Dome** and the **Arrow systems**, for smaller and larger threats, respectively.

Vertical Wind Tunnel

» Recently, Army Chief Gen.Manoj Pande virtually inaugurated **Army's first Vertical wind tunnel (VWT)** at the Army's Special Forces Training School (SFTS) at Bakloh, Himachal Pradesh

- Vertical wind tunnel functions as a **freefall simulator.** It creates a column of air at specific velocities, orchestrating different **Combat Free Fall (CFF) conditions.**

- This controlled environment enables trainees to **enhance their skills.** The simulation of varied freefall scenarios is crucial in assessing individual reactions to numerous situations in an **airborne operating environment.**

- It **reduces potential instability** in the air and during parachute deployment thereby assisting trainees to get used to freefall conditions.

Dust Suppressants

» The Delhi government has decided to **combat poor air quality by using dust suppressants, which absorb moisture.**

- Commonly, **salts of calcium or magnesium** are utilised for this purpose.

- The dust suppressant powder is **mixed with water and sprayed on roads** in identified pollution hotspots with an Air Quality Index (AQI) above 300 (considered "very poor").

- This measure aims to **keep dust levels low for longer periods.**

- Previous use of dust suppressants in Delhi resulted in a **30% reduction in dust concentration (PM10, PM2.5, and PM1)** for up to six hours at construction sites and roads.

- The recent deterioration in Delhi air quality has been attributed to decreasing temperatures and slow wind speeds. Delhi's pollution stems mainly from **continentality, vehicular emissions, construction, and industrial emissions.**

Betelgeuse Star

Size of Star
Size of Earth's Orbit
Size of Jupiter's Orbit
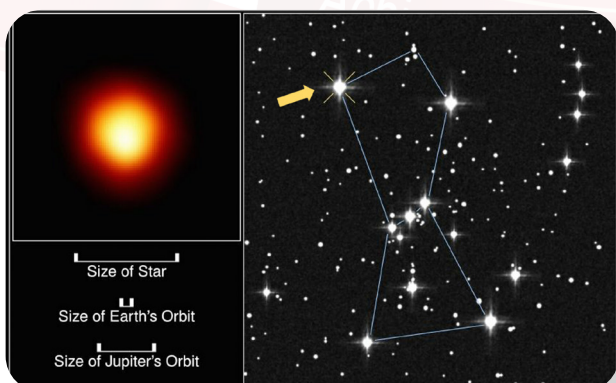
» The **Multi AperTure mid-Infrared SpectroScopic Experiment** (MATISSE) instrument, recently, found that the dimming of the **Betelgeuse star** was due to a burst of dust, in the form of **silicon monoxide.**

- Betelgeuse, also called **Alpha Orionis, second brightest star** in the constellation Orion. **Rigel being the brightest.**

- It is one of the **most luminous stars in the night sky**, however, in late 2019 it began dimming, a harbinger of star's death. This **"Great Dimming"** was, however, caused by a giant ejection of gas that condensed into dust when it cooled. Star has now returned to normal.

- This red supergiant is also known as **'Thiruvathirai' or Ardra' in Indian Astronomy.**

MATISSE

- MATISSE is a **new spectro-interferometer**, part of the second generation of instruments for the **Very Large Telescope Interferometer (VLTI)** at European Southern Observatory's (ESO) Paranal Observatory in Chile.

- ESO is an **intergovernmental organisation** established in 1962 supported by 16 Member States from Europe. All ESO telescopes are currently located in the Chilean Atacama Desert. ESO is also building **"the world's biggest eye on the sky"— an Extremely Large Telescope, located in the Chilean Andes.**

Reference Fuels

» India has joined the league of nations producing **'reference' petrol and diesel. Indian Oil Corporation (IOC)** has developed these fuels reducing import dependency and costs.

- Reference fuels (both diesel and petrol) are **premium products**. They have **higher octane numbers than normal fuels** (The octane number measures the ignition quality of petrol or diesel).

- Octane numbers of reference fuels will have a range at 97 compared to the regular and premium fuels **(87-91).**

- They are used for **engine development, performance assessment,** ensuring operability across global climatic conditions, **calibration and testing of vehicles.**

- **Domestic production** is bound to cost around **Rs 450/ litre** against the import price of **Rs 800-900/litre**. IOC will produce **ethanol-blended reference petrol** at its Paradip refinery (Odisha) and biocomponents-blended reference diesel at its Panipat (Haryana).

Attosecond Science

» **Nobel prize for Physics** was awarded for the development of attosecond science.

- Attosecond science, including the attosecond physics or attophysics, is a branch of physics wherein **attosecond (10–18 second)** duration pulses of electrons or photons are used to probe dynamic processes in matter.

- In a molecule, atoms can move and turn in **femtoseconds (10–15 seconds).** But when electrons move inside the atoms, they do it so quickly that the positions and energies change at speeds between one and few hundred attoseconds.

Applications of attosecond science

- ◆ Attosecond pulses enable scientists to capture images of **ultrafast atomic and molecular processes.** This has profound applications for fields such as material science and electronics.

- ◆ These pulses can be employed in **medical diagnostics** to detect specific molecules.

- ◆ Attosecond physics may lead to the development of **faster electronic devices.**

- ◆ The ability to manipulate attosecond pulses opens up possibilities for **higher resolution imaging and spectroscopy.**

Quantum dots (QDs)

» **The Nobel prize for Chemistry** was awarded for the development of quantum dots.

- Quantum dots (QDs) are **human-made nanometer scale** versions of semiconductor crystals.

- While both the **original crystal and its dots** (nanoscale) are **made of the same atoms**, dots exhibit some **unique optical, electronic, magnetic and even catalysis properties,** including the ability to transport electrons and emit light of various colours when exposed to **UV light**.

- Their ability to emit light while being electrically driven has led to the development of **quantum dot-based light emitting diodes** (QLEDs).

- At the scale of nanometres, materials and particles are capable of **new, size-dependent properties** because quantum physical forces start to dominate.

- They are typically composed of materials like **cadmium selenide (CdSe), cadmium sulphide (CdS), zinc selenide (ZnSe), zinc sulphide (ZnS)** or other such semiconducting materials.

Contributions of Nobel Laureates

- ☞ **Alexei I. Ekimov** was the first chemist to produce quantum dots in a robust manner in solid state and observe size specific quantum effects.

- ☞ **Louis E. Brus** was the second chemist to observe size specific quantum effects and first to synthesise quantum dots in liquid state.

- ☞ **Moungi G. Bawendi** was the first chemist to be able to synthesise QDs that have almost equal size, in order to get similar quantum properties. He developed a new method for synthesising QDs.

Carbon Nanoflorets

» Researchers at IIT Bombay have created Carbon nanoflorets that can convert incident sunlight to heat with **87% efficiency.**

- They are shaped like tiny marigold flowers, made only of carbon, they are **"extremely black – blacker than black"** in colour, making them a good absorber of light.

3 unique properties -

- ➥ The nanoflorets absorbs three frequencies in sunlight – **infrared, visible light, and ultraviolet**, unlike other **photovoltaic materials** which absorb only in **visible and ultraviolet light conditions.**

- Due to a phenomenon called **long-range disorder**, nanoflorets doesn't easily dissipate the heat generated into the environment, making it an **efficient heating solution for heating water.**

- The shape of the material ensures that **very little light is reflected back.**

R21/Matrix-M Vaccine

» **Malaria vaccine - R21/MatrixM**, developed by the University of Oxford, was recently tested in four countries — **Mali, Burkina Faso, Kenya, and Tanzania.**

- The R21/Matrix-M vaccine became the **second malaria vaccine to achieve WHO prequalification.**

- **Developed by Oxford University and manufactured by the Serum Institute of India,** this vaccine holds promise in preventing malaria in children.

- **RTS,S/AS01 (commercial name Mosquirix)** is the only malaria vaccine approved and in current use.

Sanxia Qingzhou 1

» **China's first hydrogen fuel cell ship Sanxia Qingzhou 1** (Three Gorges Hydrogen Boat No 1) completed its maiden voyage.

- It is a **service ship** that will be responsible for **traffic, inspection, emergency and other work in the Three Gorges reservoir area and river section between the Three Gorges and Gezhou Dam.**

- It uses homegrown **hydrogen fuel cells and a lithium battery system.**

- The vessel's maximum speed reaches 28 km/hr, and it has a maximum cruise range of 200 km.

- It also makes **less noise and is more cost-efficient** compared with traditional oil-fueled ships.

SWIM Project

» Recently, NASA's Subsurface Water Ice Mapping (SWIM) project released its fourth set of maps.

- SWIM project started in **2017**, aims **to locate the best places to access water ice buried under the Martian surface.**

- The project uses data from several NASA missions, such as the **Mars Reconnaissance Orbiter (MRO), the 2001 Mars Odyssey, and the defunct Mars Global Surveyor.**

- The first phase of the SWIM project, completed in 2019, focused on the northern hemisphere. The second phase, completed in 2020, includes the southern hemisphere.

- The new map includes sightings of so-called **"polygon terrain,"** where the **seasonal expansion and contraction of subsurface ice causes the ground to form polygonal cracks**, indicating more ice hidden beneath the surface.

Rapidx – NaMo Bharat

» **Maiden voyage of the Delhi-Meerut Regional Rapid Transit System (RRTS),** also known as RapidX, covers five stations from Sahibabad to Duhai Depot.

- Trains of the (RRTS), inaugurated by Prime Minister Narendra Modi, will be known as **'NaMo Bharat'**.

- The train set of the Delhi-Meerut RRTS boasts an average speed of **100 km/hr**.

- **National Capital Region Transport Corporation (NCRTC)** is the nodal agency of RapidX with the primary motive to decongest Delhi.

- The entire **82-km corridor is said to be operational by 2025.** Currently, 17 km has been cleared.

Miscellaneous

The Nobel Prizes 2023

- Recently, **the 2023 Nobel prizes were announced.**

- **Katalin Karikó and Drew Weissman** were awarded the Nobel Prize in **Physiology or Medicine** for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19.

  - A nucleoside is a basic building block of nucleic acids like DNA and RNA, consisting of a sugar molecule linked to a nitrogenous base. Their work paved the way for the rapid development of vaccines that have saved millions of lives during the pandemic. Dr. Karikó is only the 13th woman to win the prize.

- **Pierre Agostini**, Ferenc Krausz and Anne L'Huillier were awarded the **Nobel Prize in Physics** for experimental methods that generate **attosecond pulses** of light for the study of electron dynamics in matter.
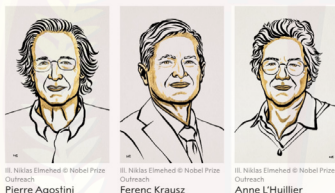
- **The Nobel Prize in Chemistry** was awarded to **Moungi Bawendi, Louis Brus and Alexei Ekimov** for their work on tiny quantum dots.
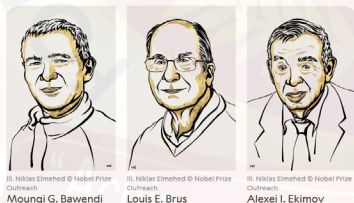
- **The Nobel Prize in Literature** was awarded to Norwegian author **Jon Olav Fosse** for his minimalist and poetic prose that explores the human condition in a profound and universal way.

- **Narges Mohammadi was awarded the Nobel Peace Prize** for her courageous and nonviolent struggle for human rights and democracy in Iran .

  - Mohammadi is a journalist, activist, and former vice president of the Defenders of Human Rights Center in Iran. She has been imprisoned several times for her peaceful advocacy and has endured torture and solitary confinement.

- **The Sveriges Riksbank Prize in Economic Sciences** in Memory of Alfred Nobel was awarded to Claudia Goldin for her work on women's labour market outcomes.

  - **Goldin is an American economist** and professor at Harvard University who has pioneered the use of historical data to analyse the economic role of women. She has shed light on topics such as gender wage gap, female labour force participation, education, and family formation.

Project Indus

- » As per latest press release, Project Indus by Tech Mahindra will be launched soon.

- Indian IT giant Tech Mahindra is working on an **indigenous Large Language Model (LLM)** that would have the ability to speak in many **Indic languages**, most notably Hindi.

- The planned model will have the ability to speak in **40 different Indic languages.**

LLM

- ⭐ A large language model is a **deep learning algorithm** that can perform a variety of natural language processing (NLP) tasks.

- ⭐ It uses transformer models and is trained using massive datasets. This enables them to **recognize, translate, predict, or generate text or other content.**

Exercise KAZNID

» **Indian Army** and **Indian Air Force** contingent comprising 120 personnel departed for **Kazakhstan** to take part in the **7th edition of Joint Military Exercise KAZIND**, which will occur in **Otar, Kazakhstan.**

• The exercise between **India and Kazakhstan** was instituted as **Exercise PRABAL DOSTYK in 2016**. After the second edition, the exercise was **upgraded to a company-level exercise and renamed as 'Exercise KAZIND'.**

• It has been further upgraded as a **Bi-service Exercise this year by including the Air Force Component.**

• Both sides will practise conduct of **counter terrorism operations under the United Nations mandate**.

LCH Prachand

» The Indian Army successfully carried out the inaugural firing of **70mm rocket and 20mm turret guns of Light Combat Helicopter (LCH) Prachand.**

• The Prachand is **India's first indigenous multi-role combat chopper fitted with Shakti Engine**, which is co-developed by **Hindustan Aeronautics Limited (HAL) and France's Safran.**

• It is designed to meet the **needs of the Indian armed forces operating in deserts and mountainous areas.**

• The Army and Air Force are looking to deploy these helicopters along the **border with China.**

• The helicopter is equipped with **anti-tank guided missile Dhruvastra** and **air-to-air missile Mistral-2** which has a maximum interception range of 6.5 km.
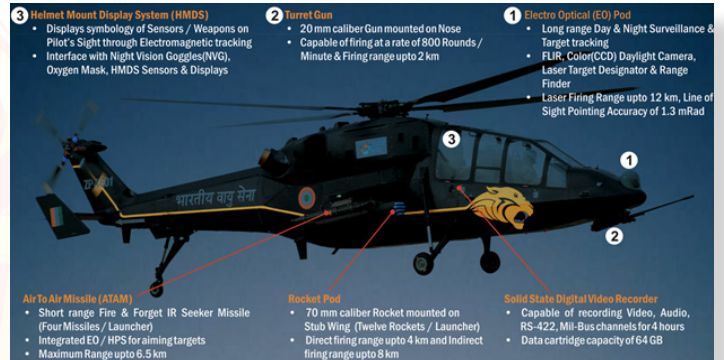
Exercise Harimau Shakti 2023

• The Exercise Harimau Shakti 2023 is currently underway, between **Indian & Malaysian Army** in **Umroi Cantonment, India.**

• The **annual training event** has been conducted **since 2012**, with the last edition in Malaysia in November 2022.

• It aims to **enhance military capability to conduct Multi Domain Operations in a sub-conventional scenario.**

Pasmanda Muslims

» BJP held a conference with prominent members and intellectuals of the Pasmanda Muslim community in Lucknow, Uttar Pradesh, in an attempt to woo them and establish a better relationship with them

• The term **'Pasmanda'**, derived from **Urdu**, has been used to refer to the **most oppressed, the most marginalised, and the most socially and economically isolated Muslims in India.**

• Pasmanda Muslims form more than **85% of the total Muslim population.**

Muthuvan Tribe

» Tamil Nadu plans to include the **Muthuvan tribe in Project Nilgiri Tahr**, launched recently.

• The Muthuvans inhabit border hill **forests of Kerala and Tamil Nadu**, comprising two groups: **Malayalam Muthuvan and Pandi Muthuvan**, speaking distinct dialects.

• Their community is governed by a **council of elders led by the "Kani" or headman**, enforcing traditional norms.

• Their **diet consists mainly of ragi and rice**, supplemented by banana, maize, and cash crops like ginger, pepper, cardamom, betel nuts, and lemongrass.

Operation Ajay

» Amid the **Israel-Hamas conflict, India launched 'Operation Ajay'** to facilitate the **return of Indians from Israel.**

• It will be using **special chartered flights and Indian Navy ships,** if needed.

• According to estimates, around 18,000 Indians are currently residing in Israel.

• A **24-hour control room has been opened which would operate simultaneously from New Delhi, Tel Aviv and Ramallah.**

National Cooperative for Exports Ltd. (NCEL)

» Recently, **Union Minister for Cooperation**, Amit Shah launched NCEL.

• Its primary objective is to improve **farmer income from exports.**

• It is set up under the **Multi-State Cooperative Societies (MSCS) Act, 2002** as an umbrella body for cooperative sector exports.

• It covers **agriculture and allied activities** as well as **handloom and handicraft.**

• All cooperative societies from the level of primary to apex, who are interested in exports are eligible to become its member.

Nano–DAP

» The **Union Minister of Cooperation** inaugurated IFFCO's Nano DAP (Liquid) plant at Kalol in Gandhinagar, Gujarat.

• Nano-DAP (Di-ammonium Phosphate) is a **nanotechnology-based agri-input.**

• developed by the **Indian Farmers Fertilizer Cooperative Limited (IFFCO).**

• It will be sold at Rs 600 per bottle of 500 ml. One bottle will be equivalent to one bag of DAP, which currently costs Rs 1,350 (50kg).

• DAP is the **second most consumed fertiliser in the country** after urea and over 60% is currently imported.

• IFFCO has also obtained a **20 year patent.**

25 by 25 Goal

» As per recent analysis by the Indian Council of Medical Research, **India will likely miss WHO and SDG targets** regarding Non-Communicable Diseases (NCDs).

• The 25 by 25 target was set by **WHO** as part of the NCD monitoring framework in 2013. It aims for a **25% reduction in premature mortality for the four NCDs by 2025,** compared to 2010.

• The 4 NCDs are - **Cancer, Cardiovascular disease (CVD), Chronic Respiratory disease (CRD) and Diabetes.**

• Premature mortality for these 4 diseases in India is projected to decrease only by 13.9% from 2010 to 2022.

Ayushman Bhav Campaign

» Recently, the **President virtually launched the Ayushman Bhav Campaign** with a goal of achieving Universal Health Coverage.

• Ayushman Bhav is a **comprehensive nationwide healthcare initiative** by the **Ministry of Health and Family Welfare.**

• It unites government sectors, civil society organisations and communities under a common mission **to ensure that every individual receives essential health services without any disparity or exclusion**

• This will be implemented during the **Seva Pakhwada from September 17th to October 2nd, 2023.**

It aims to saturate coverage of health services through its **three components;**

1. **Ayushman Apke Dwar 3.0**: Aims to provide **Ayushman Bharat cards** to remaining eligible beneficiaries enrolled under the **Pradhan Mantri Jan Arogya Yojana (PM-JAY)**

2. **Ayushman Melas at Health and Wellness Centres (HWCs) and Community Health Centres (CHCs):** Facilitate the creation of **ABHA IDs** (Health IDs) and issuance of Ayushman Bharat Cards and offer **early diagnosis, teleconsultation** etc.

3. **Ayushman Sabhas:** It will play a pivotal role in raising awareness about **health schemes**, **disease conditions**, **blood donation** and **organ donation drives** etc.

Passport To Earning (P2E)

» Recently, P2E achieved the milestone of **certifying over one million young people in India.**

• P2E is an e-learning solution launched by **UNICEF** in 2022.

• It empowers **India's young people with relevant 21st Century Skills and abilities** to thrive in school, work and life.

Tele Mental Health Assistance and Networking Across States (Tele MANAS)

» **The Ministry of Health and Family Welfare** recently highlighted the success of Tele MANAS Seva, launched in 2022 to offer free tele-mental health services nationwide, particularly to those in remote or underserved areas.

• With 24x7 Tele Manas cells across India provide mental health support in **20 languages**.

• **Tele-MANAS follows a two-tier system:** Tier 1 involves state Tele-MANAS cells staffed with trained counsellors and mental health specialists, while Tier 2 includes specialists at District Mental Health Programme (DMHP)/ Medical College resources for physical or e-Sanjeevani audiovisual consultations.

• Services include **tele-counselling, tele-consultation** by mental health professionals, and **referral services** to other mental health establishments such as medical colleges and specialty institutes.

Project Udbhav

» Recently, the **Union Defence Minister** launched Project Udbhav.

• The aim of the project is to rediscover **the profound Indian heritage related to military affairs.**

• It is launched by the Indian **Army** in collaboration with the **United Service Institution of India (USI),** a defence think tank since 1870.

• It focuses on a broad spectrum including Indigenous **Military Systems, Historical Texts, Regional Texts and Kingdoms, Thematic Studies, and intricate Kautilya Studies.**

• The project also focuses on Statecraft, Warcraft, Diplomacy, Grand strategy etc. from ancient times.

Places in News

Shebaa Farms

» Lebanon's Hezbollah recently targeted five Israeli outposts in the disputed Shebaa Farms area on the **Lebanese-Israeli border** with guided missiles and mortar shells.

• The territory is named for the farms within, which were historically tended by the inhabitants of the Lebanese town of Shebaa.

• **Lebanon and Israel** claim the region and is currently occupied by Israel.

• It is a highly volatile region where **Israeli, Syrian and Lebanese** borders meet near the **Hermon mountain range**.

Rafah Crossing

» Recently, the Rafah border crossing along **Egypt** was opened briefly, to allow humanitarian aid to enter the **Gaza strip.**

• The Border Crossing between the **Gaza Strip and Egypt** is the sole exit point of Gaza that **does not lead to Israeli territory.**

• Rafah, in the southern part of Gaza remains a vital link between Gaza and the rest of the world.

• The **Gaza-Jericho Agreement Of 1994** created a new system of **shared control between Israel and Palestine** over the Rafah Crossing.

Torres Strait Islands
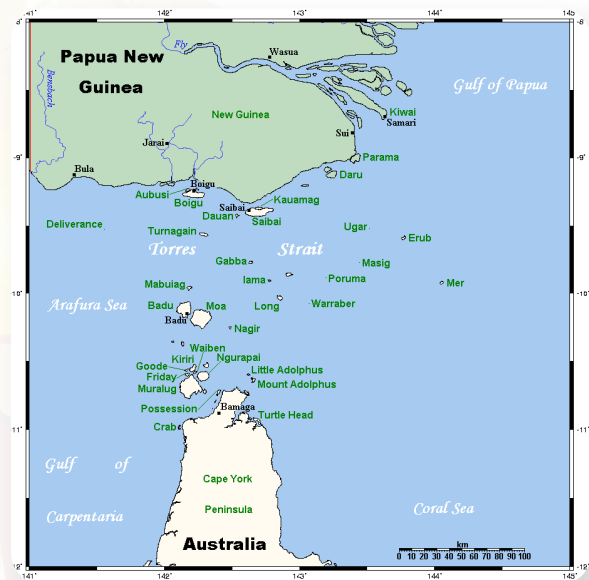
» A referendum for constitutional change in Australia to recognize the First Peoples of Australia by establishing an Aboriginal and Torres Strait Islander Voice was defeated.

• The Torres Strait Islands, is an **archipelago of small islands in the Torres Strait.**

• Torres Strait is a **narrow body of water** between the **northern tip of the state of Queensland** and the **large island of Papua New Guinea**.

Lemru Elephant Reserve

» The Union coal ministry has said that based on a request by Chhattisgarh government, **Coal India Limited's (CIL)** 40 coal blocks in and around the **Lemru Elephant Corridor (LEC)** will not be auctioned.

- The Lemru Elephant Reserves is located in the **Korba district of Chhattisgarh.**

- The stop in auction is to provide **elephants a permanent habitat while also minimising property damage and the associated human-animal conflict.**

- The reserve is part of an elephant corridor that connects **Lemru (Korba), Badalkhol (Jashpur), Tamorpingla (Surguja).**

Dhordo VIllage

» Dhordo village in **Gujarat's Kutch district** has been awarded the **Best Tourism Village title by the United Nations World Tourism Organisation (UNWTO).**

- This recognition is due to Dhordo's remarkable efforts in sustainable tourism, cultural preservation, and rural development.

- Situated in the Great **Rann of Kutch** near the **India-Pakistan border**, Dhordo is famous for hosting the annual **Rann Utsav cultural festival.**

- **The World Tourism Organization (UNWTO)** established in **1974** acts as the leading international organisation promoting responsible, sustainable, and universally accessible tourism. It is headquartered in Madrid, Spain.

Dhanauri Wetland

» The National Green Tribunal has given the Uttar Pradesh (UP) government four weeks to inform about the status of notifying the Dhanauri wetland in Greater Noida as Ramsar Wetland site.

- Dhanauri Wetlands is **spread across the villages of Dhanauri, Thasrana, and Aminpur Bangar in Greater Noida,** Uttar Pradesh.

- It is home to birds like the **Sarus Crane** (VU), **paddyfield warblers** (LC), **Blythe's reed warbler** (LC), **Ashy Prinia** (LC), **Pheasant-tailed Jacanas** (LC) etc.

Zanzibar

- **Avdiivka, an industrial hub**, has been fought over since 2014, when it was briefly captured by Russian-backed separatists.

- It now has no intact buildings, mains water or electricity.

Balticconnector Pipeline

» The **Indian Institute of Technology Madras (IIT-Madras)** inaugurated its **first-ever** international campus in Zanzibar, Tanzania.

- It is located in the **Bweleo district, near Zanzibar Town,** and will offer programs in Data Science and Artificial Intelligence at the Bachelor's and Master's levels.

- The inaugural batch includes students from **Tanzania, Nepal, and India, with a noteworthy 40% representation of women.**

Avdiivka
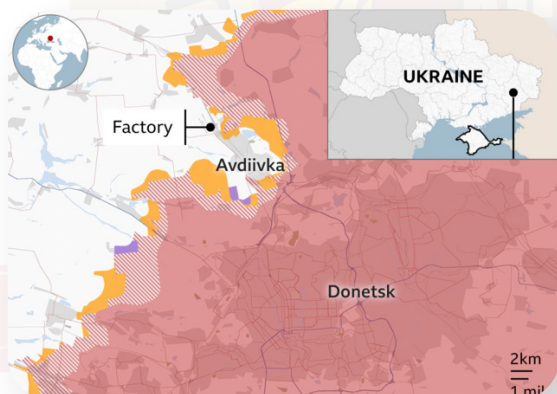
» Ukraine claims to have withstood the Russian attacks on Avdiivka in the Donbas region of eastern Ukraine.

- It is **close to the Russian-controlled city of Donetsk** (capital of Donbas)**,** seized by separatist forces in 2014.

» The **undersea Balticconnector gas pipeline** across the Baltic Sea was temporarily taken out of service due to a suspected leak. Officials suspect sabotage.

- The pipeline started operating in **2019** and connects **Inkoo in Finland and Paldiski in Estonia.** It runs 77 km across the **Gulf of Finland**, an arm of the Baltic Sea.

- The pipeline has been **Finland's only natural gas import channel** since Russian imports were stopped in 2022. **Estonian-Latvian interconnection** is also a part of the Baltic-connector project.

Baltic Sea

☞ The Baltic Sea is an arm of the **Atlantic Ocean** that is enclosed by Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden and the North and Central European Plain.

☞ It **separates the Scandinavian Peninsula from the rest of continental Europe.**

Species in News

Watermeal

» Scientists in Thailand are investigating watermeal as a **potential nutrition and oxygen source for astronauts.**

• **Watermeal, also known as Duckweed or Wolffia,** is a small, stemless aquatic plant in the Araceae family.

• It is the **smallest flowering plant, lacking roots, branches, and leaves.** Thriving in **temperate, subtropical, and tropical environments,** watermeal is used in soups and salads and is notably rich in protein.

• If **colonies cover the surface of nutrient rich** water and depletes oxygen causing fish kills.

Curcuma Kakchingense

» Researchers recently discovered a new flowering plant species in **Kakching district, Manipur** and named it Curcuma Kakchingense, in honour of the place where it was found.

• Curcuma kakchingense is from the **angiospermic family, Zingiberaceae** that includes ginger, turmeric and cardamom.

• It is a **flowering plant** that is robust, grows as tall as eight feet, and has large **terminal inflorescence.**(flowering occurs only at tip of the branch or stem)

• Currently, its IUCN Red List status is **Data Deficient.**

Data Deficient is a condition applied to species in which the amount of available data related to their risk of extinction is lacking, and therefore, a complete assessment cannot be performed.

Grey Whale

Max length: 36-49 feet
Max weight: 60,000-90,000 pounds
Estimated lifespan: 55-80 years
Gestation period: 12-13 months

Blowholes   Dorsal fin   Knuckles   Flukes   Flippers
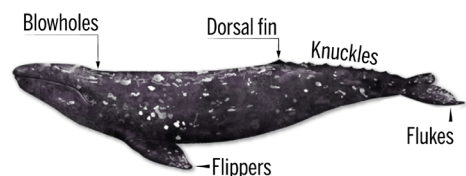
Source: NOAA Fisheries   MARK GRAVES/THE OREGONIAN

• Grey whales (gray whales), also known as **devil fish**, are **large marine mammals** found in the **North Pacific Ocean**.

• IUCN status: **Least Concern**

• They are known for their **long migrations**, which can cover thousands of miles between their breeding and feeding grounds.

• They are characterized by their **grey coloration and baleen plates** used for **filter-feeding**.

• They are famous for their **friendly nature**, making them a **popular species for whale watching**.