Current Affairs Update (June 1-7)

National

The KAVACH

- It is an **indigenously** developed Automatic Train Protection (**ATP**) system by the Research Design and Standards Organisation (**RDSO**) in collaboration with the Indian industry.
- **It provides protection** by preventing trains from passing the signal at Red and **activates the train's braking system automatically** (if the driver jumps the Red signal) and avoids collision.
- **The Traffic collision avoidance system (TCAS)** helps in two-way communication between the station master and loco-pilot to convey any emergency message.
- Both the Shalimar-Chennai Coromandel Express and the Yeshwanthpur-Howrah Express were **not fitted with KAVACH-TCAS**.

The Rashtriya Rail Sanraksha Kosh (RRSK):

- It was **created in 2017-18 with a corpus of Rs 1 lakh crore** over a period of five years with an annual outlay of Rs 20,000 crore – Rs 15,000 crore of budgetary support and Rs 5,000 crore from Railways internal resources).
- **The safety fund will be used for** improved inspection and safety work at level crossing, track repair, bridge restoration, rolling stock replacement, human resource development, etc.
- **The number of funds allocated for track renewal projects decreased** from Rs 9,607.65 crore (2018-19) to Rs 7,417 crore (2019-20), and even this amount was **not "fully utilised".**

Lavender Festival

Union Minister Dr Jitendra Singh inaugurated the **Lavender Festival in Bhaderwah, Jammu, as part of the One Week One Lab Campaign** organized by CSIR-IIIM. This is the 2nd year of the lavender revolution. Bhaderwah is hailed as the **Lavender capital of India** and an Agri StartUp destination.

Lavender is a **fragrant flowering plant known** for its aromatic purple flowers and soothing scent. It is widely cultivated for its **essential oil**, which has various uses in aromatherapy, cosmetics, and culinary applications.

Lavender Revolution: launched in **2016 by the Union Ministry of Science & Technology** through the Council of Scientific & Industrial Research (CSIR) Aroma Mission

Sedition law in India

The Law Commission of India has recommended the retention of the 153-year-old colonial law on sedition in India.

Section 124A of the IPC: It deals with Sedition – a non-bailable offence and was drafted by TB Macaulay and included in the IPC in 1870. Whoever (by words/signs/visible representation) brings or attempts to bring into hatred or contempt or excites or attempts to excite disaffection towards the Government established by law in India shall be punished.

Punishment under Section 124A: Punishment under the law varies from imprisonment up to three years to a life term and fine.

Need of Section 124A: To effectively combat anti-national, secessionist and terrorist elements.

The Law Commission of India on sedition law:

- The sedition law is **a reasonable restriction on the right to free speech.**
- *Repealing the legal provision* can have **serious adverse ramifications for the security and integrity of the country**.
- Mere fact that a particular legal provision is colonial in its origin does not validate the case for its repeal.
- Jurisdictions like the US, UK, etc., **have actually merged their sedition law with counter-terror legislations.**

'Indian Opinion' newspaper

An exhibition was launched at the Phoenix Settlement to commemorate the 120th anniversary of Mahatma Gandhi's 'Indian Opinion' newspaper.

The 'Indian Opinion' newspaper was **started by Mahatma Gandhi (in 1903)** during his time in South Africa as a young lawyer. It served as a mass communication mechanism for the **Natal Indian Congress**, fighting against oppressive laws of the government at the time. The newspaper was published in **Gujarati, Hindi, Tamil and English**. The 'Indian Opinion' continued to be published by Gandhi's son and wife after his return to India until its final edition in 1962 (banned due to censorship laws and the banning of political organizations by the apartheid government in South Africa)

Shanan hydropower project

Himachal Pradesh and Punjab are facing a potential conflict over the **Shanan hydropower project.** The Shanan hydropower project (on the Uhl River, a tributary of the Beas River) is a **110 MW power project** located in **Mandi district**, Himachal Pradesh, India. It was **commissioned in 1932** and is currently under the **control of the Punjab Government**.

What is the controversy?

The **99-year lease** on the project is set to **expire in March 2024**, leading to a dispute between **Himachal Pradesh and Punjab** over its ownership and control. Himachal Pradesh has made it clear that **it will not**

renew or extend the lease and wants the project to be handed over to the state. **Punjab**, on the other hand, is **unwilling to part with the project** and is prepared to pursue legal action to retain it.

Magnetite-bearing rocks

Magnetite-bearing rocks are rocks that contain magnetite, a **black, opaque, and magnetic mineral.** These rocks often exhibit magnetic anomalies and are known to host valuable minerals such as **Chromite, Nickel, Platinum Group of Elements (PGE), and gold**. Magnetite is one of the most **abundant metal oxides** and has various industrial applications. More often, magnetite occurs in its massive form, commonly called '**lodestone'**

The Bihar government plans to collaborate with the **Geological Survey of India** (GSI) to gather valuable geological information about **magnetite-bearing rocks in the region.**

India's first rare earth permanent magnets plant

Recently, the PM has inaugurated India's first facility to produce rare earth permanent magnets in **Visakhapatnam**.

A permanent magnet is a type of magnet that can **create a magnetic field without needing any external power source**. It is called "permanent" because once it is magnetized, it can maintain its magnetism for a long time. Permanent magnets are usually made from certain types of metals or alloys, such as iron, nickel, and cobalt, or rare earth elements like neodymium and samarium.

Rare earth permanent magnets are a type of permanent magnet that is made **from rare earth elements**. Rare earth elements are a group of **seventeen chemical elements** in the periodic table, including elements such as **neodymium, samarium, and dysprosium**.

Mission on Advanced and High-Impact Research (MAHIR)

The Mission on Advanced and High-Impact Research (MAHIR) is a significant initiative launched by the Ministry of Power and the Ministry of New and Renewable Energy. It aims to leverage emerging technologies in the power sector through indigenous development and collaboration.

MAHIR focuses on specific areas of research in the power sector. These areas include alternatives to Lithium-Ion storage batteries, modifying electric cookers/pans for Indian cooking methods, and green hydrogen for mobility (High Efficiency Fuel Cell). Additionally, MAHIR addresses carbon capture, geothermal energy, solid-state refrigeration, nano-technology for EV battery, and indigenous CRGO technology.

International

Suriname

President Droupadi Murmu recently visited Suriname on a three-day trip, aiming to **strengthen India's bilateral relations** with the South American nation. The visit to Suriname is a significant component of her two-nation tour, **with Serbia being** the other destination.

Suriname (Capital: Paramaribo**) is a small country** on the northeastern coast of South America. It's defined by vast swaths of tropical rainforest, **Dutch colonial architecture** and a melting-pot culture.

Kosovo-Serbia conflict

The Kosovo-Serbia conflict stems from **Kosovo's declaration of independence from Serbia** in 2008, which Serbia does not recognize. Tensions arise from **historical, ethnic, and political factors, leading to sporadic clashes** and disputes. Efforts to resolve the conflict have been slow, with concerns about Serbia's ties to Russia.

Kosovo is located between the **Mediterranean Sea and mountainous regions** of Southeast Europe, on the **Balkan Peninsula**. Serbia is a **small land-locked country** in the Balkan region. It shares borders with Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, North Macedonia, Montenegro, Romania and Albania.

Country Partnership Strategy for India (CPS): 2023-2027

The **Country Partnership Strategy (CPS) for India (2023-2027**) is a plan by the Asian Development Bank (ADB) to deepen its engagement with India and support its drive for robust, climate-resilient, and inclusive growth.

The aim of the CPS is to **accelerate structural transformation** and job creation, promote **climate-resilient growth, regional cooperation**, and integration in South Asia, and deepen social and economic inclusiveness.

Three pillars:

- Accelerate the structural transformation and job creation through the convergence of **logistics-industry-urban-skilling programs**, along with support for MSMEs.
- Promote **climate-resilient growth.**
- Deepen **social and economic inclusiveness**.

The Asian Development Bank (Est. 1966; HQ: Manila, Philippines) is a regional development bank to **promote social and economic development** in Asia and the Pacific. ADB is an official **United Nations Observer**. The Asian Development Bank has **68 member countries, with 49** from the Asia-Pacific region

and 19 from outside the region. The Asian Development Bank is **owned by its member countries**, with **Japan** and the United States being the **largest shareholders**. India is one **of ADB's founding members**.

Fraser Island Regains its Original Name

Fraser Island, the world's largest sand island, has recently regained its original name, K'gari. This momentous event was celebrated by the traditional owners, the Butchulla people, in the ancient forests of K'gari. The reinstatement of the island's name holds deep cultural significance and represents a step towards recognizing and honoring Indigenous heritage.

Spinoza Prize

Indian-origin scientist **Joyeeta Gupta** has been honored with the prestigious Spinoza Prize, also known as the 'Dutch Nobel Prize', for her remarkable contributions to science and her commitment to creating a just and sustainable world. The Spinoza Prize is widely regarded as the highest distinction in Dutch science. It recognizes outstanding researchers who have made significant advancements in their fields and have demonstrated exceptional scientific contributions.

Science-Tech & Environment

Solar E-Waste

Solar e-waste refers to the electronic waste generated by discarded solar panels. As solar panels have a limited **lifespan of 20-25 years**, their disposal raises concerns about managing the electronic waste they create.

What does Solar Panel consist of?

A PV module is essentially made up of **glass, metal, silicon and polymer fractions**. Glass and aluminium, together constituting **around 80% of total weight**, are **non-hazardous.**

But a few other materials used including **polymers, metals, metallic compounds and alloys** are classified as **potentially hazardous**.

Status:

- PV module recycling is **still not commercially viable**
- PV waste recycling is **still at a nascent stage globally**
- **India does not have a solar waste management policy**, but it does have ambitious solar power installation targets.
- India's PV (photovoltaic) waste volume is estimated to grow to **2,00,000 tonnes by 2030** and around 2 million tonnes by 2050.

Importance of Biodiversity

- **Ecosystem services:** Species perform some or the other functions (soil formation, reducing pollution) in an ecosystem.
- **Provisioning services**: Food, fibre, fuelwood, etc. It is biodiversity that will form the basis of a **new sustainable green economy.**
- **Regulating services:** It is biodiversity that will restore degraded lands and polluted rivers and oceans and sustain agriculture in the face of climate change.
- **Supporting services:** Biodiversity helps in pollination, nutrient cycling as well as recycling, GHGs reduction by sequestration.
- **Social and cultural services:** Biodiversity provides aesthetic, and recreational pleasure.
- **Food web maintenance:** Higher the diversity of an ecosystem, more complex is going to be the food webs.
- **Scientific role:** Biodiversity help in scientific research, education and monitoring.

The new treaty for outer space

- Over the past decade, **fundamental changes** have been witnessed in outer space like weaponisation of space, exponential increase in satellite launches, etc. **For example,** there were 210 new launches in 2013, which increased to 600 (2019), 1,200 (2020) and 2,470 (2022). This increase is fuelled by the **active participation of the private sector.**
- Outer space (like asteroids) contains **abundant deposits of valuable metals** (platinum, nickel, cobalt, etc) and governments are in favour of the exploitation of space resources.
- **Space debris is another issue.** More than 130 million smaller than one cm have been recorded.
- Currently, **there is no agreed international framework** on space resource exploration, exploitation and utilisation.
- **Conflict could arise** if countries do not agree on international principles and could also lead to **environmental degradation and cultural loss.**
- Hence, the development of international norms, rules and principles will ensure **effective governance, propel innovation and mitigate risks in outer space.**

Li-ion battery recycling technology

The Ministry of Electronics and Information Technology (MeitY) in India has transferred **cost-effective lithium-ion battery recycling technology** to nine recycling industries and start-ups as part of the **Mission LiFE under the "Promote circularity campaign**."

This indigenous technology can process various types of **discarded lithium-ion batteries**, recovering over **95% of lithium**, **cobalt, manganese, and nickel** contents in the form of corresponding **oxides/carbonates** with a purity of about 98%.

Aim of recycling: To recover valuable materials from lithium-ion batteries, reducing the need for mining and minimizing environmental impact. It helps conserve resources and promotes sustainable practices in battery manufacturing.

Developed by: The technology was developed at the Centre of Excellence on E-waste Management, in collaboration with the Government of Telangana and industry partner.

India generates more than **50,000 tons of lithium-ion battery** waste annually, growing in the range of 40-80%. India currently imports **all of its Li from Australia and Argentina** and **70% of its Li-ion cell requirement** from China and Hong Kong

MH60R helicopter

- The Indian Navy achieved another unique feat after an **MH-60 'Romeo' multi-mission helicopter** landed on the indigenously-built aircraft **carrier INS Vikrant**.
- Manufactured by Lockheed Martin Corporation is an **all-weather helicopter designed to support multiple missions with state-of-the-art avionics and sensors.**
- MH60R helicopter is a versatile platform known for its **exceptional ASW, surveillance, anti-shipping, and search and rescue capabilities**

Higgs boson decay

Physicists working with the **Large Hadron Collider (LHC) particle-smasher** at CERN, reported that they had **detected a Higgs boson decaying into a Z boson particle and a photon** which is a very rare decay process.

The Higgs boson is a **subatomic particle that gives other particles mass**. The strength of a particle's interaction with the Higgs boson determines its mass. **For Example**, Electrons have a certain mass, protons have more, and neutrons have slightly more than protons because of their interactions with the Higgs boson. The **Higgs boson can also interact with other Higgs bosons, indicating its greater mass.**

Need for understanding Higgs Boson: The properties of the Higgs boson and how particles **interact with it can provide insights into the universe**.

Z boson and a photon: Virtual particles are particles that **briefly exist and cannot be directly detected but have lingering effects according to quantum field theory**. The creation of a Higgs boson at the Large Hadron Collider (LHC) involves interactions with virtual particles, resulting in the **production of a Z boson and a photon.** Photons, which are particles of light, **have no mass because they do not interact with the Higgs boson.**

Cyber attacks

- Cyber attacks expected to see substantial rise in the near future are **phishing, smishing, and vishing attacks**, followed by ransomware attacks and zero-day exploits.

- **Phishing scams** trick users into divulging sensitive data, downloading malware, and exposing themselves or their organisations to cybercrime.
- **Smishing** often involves sending bogus text messages – have a sense of urgency and request the recipient click on a link or reply with personal information.
- **Vishing** (voice or VoIP phishing) uses voice and telephony technologies to trick targeted individuals into revealing sensitive data to unauthorised entities.
- **Zero-day attacks** take place when hackers exploit the flaw before developers have a chance to address it.

"Quasi-moon"

A quasi-moon is a term used to **describe an asteroid or space rock that orbits** the sun in a similar time frame as Earth but is only **slightly influenced by Earth's gravitational pull**. It appears to accompany Earth during its yearly journey around the sun but is **not a natural satellite like the moon.**

About 2023 FW13:

It orbits the **sun in a similar time frame as Earth** but is only minimally affected by Earth's gravitational pull. Estimated to be 50 feet in diameter, it comes within 9 million miles of Earth during its orbit. The asteroid was first observed in March and has likely been travelling alongside Earth since around 100 B.C. It is considered to be the **longest-known quasi-satellite of Earth.** Although it is in **close proximity to Earth**, there is no imminent risk of a collision.

Phage therapy

Phage therapy is a treatment approach that uses **bacteriophages,** which are viruses that infect and kill specific bacteria. It involves using these viruses to **target and destroy bacterial infections**, serving as an alternative to antibiotics.

How do they function?

Phages are highly **specific in their action**, targeting only the specific bacteria they are programmed to attack, which can **potentially reduce the risk of antibiotic resistance**. Phage therapy has gained attention as a potential solution for **antibiotic-resistant infections** and is being explored as a promising avenue in medical research.

Bacteriophages are viruses that infect bacteria and use them as hosts for their replication. They are highly diverse and can target different types of bacteria. It was discovered by **Frederick Willian Twort in 1915 (**Great Britain) and Felix d'Herelle in 1917 (France)

Keeling Curve

The Keeling Curve is a record of atmospheric carbon dioxide (CO_2) concentrations measured at the Mauna Loa Observatory in Hawaii. It was initiated by scientist Charles David Keeling in 1958.

Flavanols

Flavanols are **a type of flavonoid, a class of compounds with antioxidant effects**. Flavonoids are a diverse group of phytonutrients (plant chemicals) found in almost all fruits and vegetables. They are known for their health benefits, **which are often attributed to their antioxidant, anti-inflammatory, and immune-boosting properties.**

A team of researchers recently discovered that a **diet low in flavanols** – a type of nutrient found in a variety of fruits, vegetables, and beverages such as tea, cocoa, or wine **– plays a fundamental role in driving age-related memory loss.**

Silent Barker

The US Space Force, in collaboration with the National Reconnaissance Office (NRO), is gearing up to launch a satellite constellation called Silent Barker. This constellation is specifically designed to address the growing concerns surrounding Chinese and Russian space vehicles that have the potential to disable or damage orbiting objects.

By deploying this constellation, the US Space Force aims to enhance its ability to detect, detect, and track potential threats against high-value US systems. The satellites of the Silent Barker constellation will be positioned approximately 22,000 miles (35,400 kilometers) above the Earth in geosynchronous orbit.

Varunastra Torpedo

In a significant achievement for the Indian Navy, the Varunastra, an indigenously developed ship-launched anti-submarine heavy-weight torpedo (HWT), has proven its capabilities through a successful test firing

The Varunastra torpedo, named after the Indian God of Oceans, is a state-of-the-art weapon designed to counter underwater threats. It was developed by the Naval Science and Technological Laboratory (NSTL) of the Defence Research and Development Organisation (DRDO).

During the latest trail, the Varunastra torpedo successfully hit its target after being fired from a submarine at a range of 40 kilometers. This remarkable achievement demonstrates the torpedo's accuracy and effectiveness in neutralizing submarine threats.

Economics

Strategic Oil Reserves

- A strategic oil reserve refers to a stockpile of crude oil or petroleum products that a country maintains as a strategic **measure to ensure energy security and stability in times of emergencies or disruptions in oil supply.**
- **The International Energy Agency (IEA)** recommends that all countries maintain emergency oil **stockpiles equivalent to 90 days of import protection.**

Statistics about Oil Reserves In India:

- India, the **world's third-largest consumer of crude, depends on imports for more than 85% of its requirement**.
- India currently has an **SPR capacity of 5.33 million tonnes or around 39 million barrels of crude**. India's strategic petroleum reserves (SPR) currently **provide around 9.5 days of oil requirement coverage.**
- Additionally, oil marketing companies in India have their storage facilities, providing an additional 64.5 days of storage, totalling **approximately 74 days of petroleum demand coverage.**
- India's strategic crude oil storages are currently located at **Visakhapatnam** (Andhra Pradesh), **Mangaluru** (Karnataka), **Padur** (Karnataka) and **Chandikhol in Odisha.**
- The construction of the **Strategic Crude Oil Storage facilities**in India is being managed by **Indian Strategic Petroleum Reserves Limited (ISPRL) (a** wholly owned subsidiary of Oil Industry Development Board (OIDB) under the Ministry of Petroleum & Natural Gas).

Payment System Operators (PSOs)

Payment System Operators (PSOs) are entities that facilitate the movement of funds between payers and payees in electronic payment systems. They provide the necessary infrastructure and technology to enable various payment transactions, such as online payments, card payments, mobile payments, and electronic fund transfers.

Examples: Popular PSOs like **PayPal, RuPay, Visa, Mastercard, and Paytm** act as intermediaries in processing and settling payments between buyers and sellers in online transactions.

About the guidelines:

- The proposed guidelines require PSOs to **implement inventory management**, approved cybersecurity measures, and crisis management plans, and comply with Basel standards.

- PSOs will have to **report any unusual incident** including those involving cyber-attacks, internal fraud etc. to RBI **within six hours of detection**.
- Provisions of these directions shall apply to **all authorised non-bank PSOs**.
- **The Board of PSOs** has been made responsible for ensuring adequate oversight over information

'Assured irrigation'

Assured irrigation refers to the **provision of reliable and guaranteed water supply** for agricultural purposes. Assured irrigation systems can include **canals, drip irrigation, sprinklers**, and other methods that efficiently deliver water to crops.

Importance of 'assured irrigation': It ensures that cultivated land has access to a sufficient and regular water source, reducing dependence on rainfall and minimizing the risk of crop failure due to water scarcity.

Data about water use:

- Agriculture accounts for about **80% of India's available water use of 700 billion cubic metres**
- The monsoon rainfall in **June-September**, which waters the Kharif or summer-sown crops, plays a crucial role in farm production.
- Agriculture accounts for about **18% of the national economy** and is the **largest employer.**
- **Out of the total irrigated area, 40%** is currently **watered through canal networks**, and **60% through groundwater.**

Ethics & Society

The practice of manual scavenging in India

Manual scavenging includes the disposal of human excreta manually from dry latrines, and public streets and the maintenance and sweeping of septic tanks, sewers and gutters.

Prevalence in India: As many as **58,000** people worked as manual scavengers as of 2018. **941 people have died since 1993** due to accidents while undertaking hazardous cleaning of sewer and septic tanks. The practice, which is considered the worst remaining evidence of untouchability, is **most prevalent among people from lower castes/Dalits.**

Salient features of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act 2013:

- **It bans manual scavenging**.

- **It widened the definition of manual scavengers** by including it in all forms of manual removal of human excreta.
- **It lays** a **key focus on rehabilitating the manual scavengers** by organising training programs (at a stipend of Rs. 3000) and offering scholarships to their children.
- It makes the offence of manual scavenging **cognizable and non-bailable.**
- It makes it **obligatory for employers to provide protective tools** to the workers.

Best practice: The Bandicoot Robot is the world's first robotic scavenger, developed as a Make in India and Swachh Bharat Abhiyan initiative by the startup Genrobotics. **Kerala became the first state** in the country to use robotic technology (Bandicoot) to clean all its commissioned manholes.

Yakshagana

- Yakshagana is a **traditional theatre form of Karnataka.**
- It is performed with **massive headgear, elaborate facial makeup, and vibrant costumes and ornaments.**
- Usually recited **in Kannada, it is also performed in Malayalam as well as Tulu** (the dialect of south Karnataka).
- It is performed with percussion instruments like **chenda, maddalam, jagatta or chengila (cymbals) and chakratala or elathalam (small cymbals).**

Features

- It was performed by a special community known as **Jakkula Varu in the royal courts of the Vijayanagar dynasty.**
- The word Yakshagana is derived from the names **Aata Bayalaata, Kelike, and Dashavatara**.

Current Affairs Update (June 8-14)

National

Cyclone Biparjoy

- A cyclonic storm, **named Biparjoy**, has developed in the **Arabian Sea.** 'Biparjoy' was **suggested by Bangladesh** and the word **means 'disaster' or 'calamity' in Bengali**.
- A **cyclone is a low-pressure system that forms over warm waters**. Usually, a high temperature anywhere means the **existence of low-pressure air, and a low temperature means high-pressure wind**.
- The naming of **cyclones is done by countries on a rotational basis**, following certain existing guidelines.
- Worldwide, there are **six regional specialised meteorological centres (RSMCs) and five regional Tropical Cyclone Warning Centres (TCWCs)** mandated for issuing advisories and naming of tropical cyclones.
- IMD is one of the six RSMCs to provide tropical cyclone and storm surge advisories to 13 member countries under the WMO/Economic and Social Commission for Asia-Pacific (ESCAP) Panel including **Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates and Yemen.**

Menhir and megalithic burial sites

- The TN Department of Archaeology has declared **five 'menhir' (single stone) and megalithic burial sites** at Kodumanal in Erode district as protected monuments.
- A megalith is **a large stone** that has been used to construct (burial sites/ commemorative memorials) **a prehistoric structure or monument**, either alone or together with other stones.
- The majority of the megaliths in **India** are dated by archaeologists to the **Iron Age (1500 BC to 500 BC)**, while some sites date back as far as 2000 BC.
- Megaliths are spread across the Indian subcontinent. However, **the majority of megalithic sites are found in Peninsular India.**

JATAN

A MoU has been signed between the MeitY and Union Culture Ministry to complete 3D digitisation of all museums (under central control) by the year-end for better conservation of artefacts. The 3D digitisation would be done using the **JATAN** virtual museum builder software through **3D scanning**.

3D scanning: It means **analysing a real-world object or environment** to collect 3-dimensional data on its shape and possibly its appearance. The collected data is then **used to construct digital 3D models.**

About JATAN: JATAN is a **digital collection management system for Indian museums** designed and developed by **Human Centres Design and Computing Group**, Centre for Development of Smart Computing, **Pune**. It can create **3D virtual galleries and provide public access** through web, mobile or touchscreen kiosks.

Museums included:

- Salar Jung Museum, Hyderabad,
- The Allahabad Museum in Prayagraj,
- The Indian Museum and the Victoria Memorial Hall, Kolkata,
- The National Museum and the National Gallery of Modern Art, New Delhi.

Why Meghalaya is called the 'abode of clouds'?

Meghalaya is called the 'abode of clouds' because it receives heavy rainfall throughout the year, leading to a cloudy and misty atmosphere.

Geographical reason:

Meghalaya receives rainfall throughout the year due to its **geographical location and topography**. The region is surrounded by **hills and mountains**. It is influenced by the southwest monsoon winds that bring moisture from the Bay of Bengal. The hilly terrain and dense forests of Meghalaya act as barriers, causing the moisture-laden clouds from the Southwest monsoon to rise and condense, resulting in continuous rainfall. This geographical setup creates a **unique microclimate in Meghalaya**, making it one of the wettest places on Earth.

Mawsynram, in Meghalaya, receives the highest rainfall in India. It is reportedly the **wettest place on Earth**, with an average annual rainfall of 11,872 millimetres. **Mawsynram** lies in the **funnel-shaped depression** caused by the **Khasi range in Meghalaya**.

Renovation of Cochin Port

The Indian government has announced a **₹7,500 crore project** for the renovation and **modernization of Cochin Port**, one of the **critical ports for the country's economy**.

The project aims to make **Cochin a global hub for fish trade** and is funded through the **PM Matsya Sampada Yojana-Blue Revolution program** and the **Sagarmala scheme**. The project is part of **India's efforts to achieve ₹1 lakh crore worth of exports** from the **fisheries sector by 2024-25.**

Cochin Port is a major port on the **Arabian Sea – Laccadive Sea – Indian Ocean Sea route** in the city of Kochi and is one of the largest ports in India. It is also the **first and largest transhipment port** in India. The port lies on two islands in the Lake of Kochi: **Willingdon** Island and **Vallarpadam**, towards the Fort Kochi River mouth opening onto the Laccadive Sea. **Cochin Shipyard** is the largest shipbuilding as well as maintenance facility in India.

DPI

- DPI (Digital Public Infrastructure) refers to the **technological framework and systems** that enable digital transformation and provide essential digital services to the public. DPI encompasses various components such as digital identity (e.g., Aadhar), digital payments (e.g., UPI), data exchange, and other digital solutions that contribute to improving governance, inclusivity, and efficiency in public services.
- Global DPI Summit and Global DPI Exhibition were inaugurated by the Ministry of State in Electronics and IT and MSDE. Also, a meeting of the G20 Digital Economy Working Group (DEWG) is being held in Pune.
- The Digital Economy Working Group (DEWG), formerly known as DETF, was established in 2017 during the German G20 presidency. Its primary objective is to facilitate the development of a secure, interconnected, and inclusive digital economy.

Har Ghar Jal' programme

- Also called Nal Se Jal Yojana. It was launched in 2019
- The 'Har Ghar Jal' programme aims to provide safe and affordable tap water connections **to every rural household in India.**
- Under Jal Jeevan Mission (JJM) (Ministry of Jal Shakti). The scheme is based on a **unique model where paani samitis (water committee)** comprising villagers will decide what they will pay for the water they consume.
- **Aim:** Provide fully functional, **safe and affordable tap water connections** to every rural household in India by 2024
- B**urhanpur district** (MP) was the **first 'Har Ghar Jal' certified district** in the country; **Goa was the 1st State** to achieve **100% coverage**

Squash World Cup

The Squash World Cup, set to **take place in Chennai**, from June 13 to 17, is introducing some exciting changes to attract attention and engage more people in the sport. The tournament will feature a **mixed team competition and will be played in the format of a best-of-five game**, with each game played to **seven points instead of the usual 11**.

Squash is a **fast-paced racquet sport played** by two players (singles) or four players (doubles) on a four-walled court. The objective is to **hit a small rubber ball against the front** wall, making it difficult for the opponent to return.

World Test Championship final

- Australia convincingly **defeated India by 209 runs** in the World Test Championship final held at The Oval

- With this victory, Australia became the **second team, after New Zealand**, to win the prestigious Mace. This marks India's second consecutive loss in the WTC final.
- The World Test Championship is a **two-year cricket tournament where nine teams compete** to become the undisputed World Test champion. Each team **plays six series**, three at home and three away.

International

Ecocide

The **destruction of the Kakhovka Dam in Ukraine** is a fast-moving disaster, developing into a long-term environmental catastrophe (termed as **ecocide**) and worsening the ongoing Russia-Ukraine conflict.

The Kakhovka Dam:

- It was built in **1956 (under the Soviet Union) on the Dnipro River in Ukraine** (Kherson region) as part of the Kakhovka hydroelectric power plant.
- The reservoir of the dam supplies water to the **Crimean peninsula** (annexed by Russia in 2014) and **Zaporizhzhia nuclear plant** (Europe's largest and also under Russian control).
- There are different **theories behind the collapse of the dam** – **Ukraine blames Russia/** Russia blames Ukraine/for collapse due to earlier damage.

Impact of the collapse:

- **Floods and destruction:** The left bank of the Dnipro River remains under Ukrainian control, while the right side is controlled by the Russians.
- **Agriculture and global food security:** Often called the "**bread basket**" of the world, **64% of Ukraine's wheat** is exported to developing countries. The flooding is likely to make **arable lands unfit for agriculture** for years to come due to increased salinity in the soil, as well as **contamination of irrigation canals**.
- **Energy security:** Ukraine relies on its **four nuclear power plants**, considered to be a clean energy source, for over **half of its energy needs**. **The damage to the hydroelectric dam** is also a hit to the renewable energy resources in Ukraine.
- **Fresh water supplies: For example,** water levels in the North Crimea Canal, which brings fresh water from the Dnipro River to the Crimea peninsula, may decrease.

Hiroshima AI Process (HAP)

- The 2023 annual G7 Summit, hosted by Japan (Hiroshima), initiated the Hiroshima AI Process (HAP) – an effort to determine a way forward to regulate artificial intelligence (AI).
- It recognised the need to immediately take stock of the **opportunities and challenges of generative AI,** which is increasingly prominent across countries and sectors.
- **It encourages discussions** on generative AI in cooperation with the OECD and GPAI to conduct practical projects.
- **These discussions** could include topics such as **governance, safeguard of IPR** (including copyrights), response to foreign information manipulation (including disinformation) and responsible utilisation of these technologies.

Significance of the HAP:

- **It will highlight the shared values and standards** that can be used to derive guiding principles (fairness, accountability, transparency, and safety) for the regulation of AI.
- **AI development and implementation** will help in aligning with values such as freedom, democracy and human rights.
- **An emphasis on multi-stakeholder international cooperation** indicates that the HAP isn't expected to address AI regulation from a State-centric perspective.

Sudan

The fighting between the **Sudanese Armed Forces and the paramilitary Rapid Support Forces** has severely impacted Sudan's economy and led to shortages of essential resources. The clashes have resulted in numerous casualties, and the conflict has now spread to the troubled **region of Darfur**.

About the Darfur region: It is a **region in western Sudan** that has been plagued **by violent conflict and humanitarian** crises. The area has **experienced ethnic tensions** between Arab and African communities, leading to **widespread violence and human rights abuses**.

Serbia

The President of India, Smt Droupadi Murmu visited Belgrade, Serbia recently (1st by an Indian President)

Serbia, officially the Republic of Serbia, is a **landlocked country** in South-eastern and Central Europe, situated at the crossroads of the **Pannonian Basin and the Balkans**. **Countries bordering it are** Hungary, Romania, Bulgaria, North Macedonia, Kosovo, Croatia, Bosnia and Herzegovina, and Montenegro. The Rivers flowing through it are the **Danube, Sava and Tisa etc.**

TAPI gas pipeline

Pakistan and Turkmenistan have signed a **Joint Implementation Plan (JIP)** to accelerate the progress of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline project. TAPI project aims to export natural gas annually through the pipeline from Turkmenistan (**Galkynysh gas field) to Afghanistan, Pakistan and India (Fazilka**). It is funded by the **Asian Development Bank (ADB)**.

Northern Sea Route (NSR)

Russia has unveiled plans to invest 2 trillion rubles ($24 billion) in the development of its Northern Sea Route (NSR) over the next 13 years

It connects the **eastern and western parts** of the Arctic Ocean. The NSR runs from the **Barents Sea**, near Russia's border with Norway, to the **Bering Strait between Siberia** and Alaska. NSR is different from the **Northwest Passage** which is a series of possible shipping routes connecting the **Atlantic and Pacific Oceans** through the **Canadian Arctic**. The entire route lies in Arctic waters and within **Russia's exclusive economic zone**. It is **one-third of the distance of the traditional route t**hrough the Suez Canal.

U.S. decides to rejoin UNESCO

The United States has announced its decision to rejoin the United Nations Educational Scientific and Cultural Organisation (UNESCO) and **pay over $600 million in back dues.**

Significance of the US rejoining UNESCO:

- **Financial boost:** US contributed **22% of the agency's overall** funding before leaving.
- **Global Leadership:** The U.S. brings substantial resources, expertise, and influence, which can help drive international cooperation and shape global agendas in these areas.
- **Counterbalancing China:** The U.S. rejoining UNESCO allows it to counterbalance China's growing influence within the organization.
- **Multilateral Engagement**: This move reinforces the importance of international cooperation and strengthens **diplomatic ties with other member states**.
- **Preservation of Cultural Heritage**: UNESCO plays a crucial role in preserving cultural heritage sites worldwide.

Miss World Pageant

The Miss World Organization recently announced that India has been selected as the host country for its upcoming competition, scheduled to take place later this year. In **1996**, the Miss World pageant made its way to India, marking a significant milestone for the country. This was the first time that India served as the host nation for this illustrious event. The pageant took place in Bengaluru, the capital of the southern state of **Karnataka**. The Miss World pageant was originally launched in Britain in 1951 during the Festival of **Britain**.

Atlantic Declaration

On June 8, the **United States and the United Kingdom** forged a new strategic pact to address pressing global challenges. This pact, known as the Atlantic Declaration, was adopted by US President **Joe Biden** and UK Prime Minister **Rishi Sunak**. The focus of this agreement is to tackle the rising influence of China, the aggressive actions of Russia, and economic instability that threatens both nations.

The Atlantic Declaration explicitly recognizes the challenges that threaten international stability. The agreement acknowledges the rise of authoritarian states, the disruptive influence of advanced technologies, the impact of non-state actors, and the transnational challenges posed by climate change. By addressing these concerns head-on, both nations aim to foster a more stable and secure global environment.

Developing Nation Status Act

The US Senate Foreign Relations Committee has recently approved bipartisan legislation known as the Developing Nation Status Act, which seeks to **remove China's "developing country" status**. This move follows a similar action taken by the US House of Representatives in March. The legislation has significant implications for China's position in international organizations and treaties

The act directs the Secretary of State to actively pursue changing China's status to that of a "developed country" in relevant agreements. Supporters of the legislation argue that China can no longer be considered a developing country due to its robust economy, military power, and extensive global investments. They contend that China has exploited its designation for an unfair advantage in multilateral negotiations, particularly evident in its Belt and Road Initiative.

However, China's foreign ministry asserts that it is not up to the US to decide its status, emphasizing that China's position as the world's largest developing country is grounded in facts and international law.

Science-Tech & Environment

Factors Causing Rapid Melting of Arctic Ice

- **Arctic Amplification:** It refers to the phenomenon where the Arctic region experiences more rapid warming compared to the rest of the planet
- **Albedo Feedback Loop:** Ice has high reflectivity (albedo) compared to land or water surfaces. Decreased ice cover reduces Earth's surface reflectivity, leading to more absorption of solar radiation and surface warming
- **Darker Ocean Surface:** Bright ice is being replaced by a darker open ocean surface in the Arctic. Less reflection of the sun's radiation, resulting in additional heating and ice loss
- **Melting permafrost:** As permafrost thaws, it releases stored greenhouse gases, such as methane, which contribute to additional warming.

- **Atmospheric circulation patterns:** Changes in atmospheric circulation patterns can transport warm air into the Arctic, further raising temperatures and melting ice.

Jagdish Bakan

- **Jagdish Bakan, the Wildlife Warden and District Forest Officer (DFO) of Ramanathapuram** district, has been awarded the **2023 Michel Batisse Award for Biosphere Reserve Management by UNESCO**.
- He is recognized for his work in managing the **Gulf of Mannar Biosphere Reserve**, known for its **diverse marine biodiversity**.
- Michel Batisse Award for Biosphere Reserve Management is a US$12,000 award, given **every two years** (by UNESCO), in memory of **Dr Michel Batisse**, for outstanding achievements in the management of the biosphere reserves in line with the recommendations of the **Seville Strategy**.
- **The basic principle of 'The Seville Strategy':** Biosphere reserves should preserve and generate natural and cultural values through management that is scientifically correct, culturally creative and operationally sustainable.

"Virgin Birth" by a crocodile

Scientists have documented the **first-known instance of a "virgin birth" by a crocodile,** which had been **living in isolation for 16 years at Costa Rican Zoo**. Scientists found DNA sequences showing it was a **result of facultative parthenogenesis or reproduction without the genetic contribution of males.**

About Facultative Parthenogenesis:

Facultative parthenogenesis is the term for **when a female can produce offspring either sexually or via asexual reproduction**. The phenomenon of FP has also been **documented in other species of fish, birds, lizards and snakes**. The scientists said this **is the first-known example of a crocodile.**

Taurine

- Taurine is **an amino acid** that has a few important roles in your body, **including supporting immune health and nervous system function.**
- The scientific report suggests **taurine plays a role in reducing cellular senescence – where cells in the body stop dividing – a hallmark of ageing.**
- The nutrient also appeared to **keep mitochondria – the power stations in the body's cells – functioning.**
- Taurine is virtually non-existent in plants. So the nutrient **either comes from the animal protein in the diet or is manufactured by the body.**
- A recent study has shown that **Taurine – a nutrient found in meat, and fish and sold as a supplement** – extends life and boosts health in a range of animal species.

Life Cycle of a Star

A star is born from a dense cloud of gas and dust **called a nebula**. Through the process of nuclear fusion, it converts hydrogen into helium, releasing energy and emitting light. As the star **exhausts its hydrogen fuel**, it **expands and becomes a red giant**. In this phase, it **fuses helium into heavier elements** like **carbon and oxygen.**

While smaller stars, like our Sun, eventually shed their outer layers and form a white dwarf. **Larger stars** undergo a **supernova explosion**, where their **cores collapse** and release an **immense amount of energy**. This explosion **disperses heavy elements into space** and may result in the formation of a **neutron star or a black hole**.

Recent research on the massive **red giant star Betelgeuse** suggests that it is in its late carbon-burning stage (near the end of its life) and may explode as a supernova within a few decades. **Betelgeuse** is a **red giant star located** in the constellation **Orion**. It is one of the **largest and brightest stars visible** to the naked eye.

Dimethyl Ether

- **Dimethyl Ether (DME) is a renewable and clean-burning alternative fuel** that can be used in various applications, including **transportation**. Under normal atmospheric conditions, **DME is a colourless gas**. It is produced from **natural gas, coal, biomass, or renewable sources** through a synthesis process.
- **Uses**: It is used extensively in the chemical industry and as a **solvent, fuel, and refrigerant (**ozone-friendly aerosol propellant to replace CFCs). DME has **properties similar to liquefied petroleum gas (LPG)** and can be easily stored and transported.
- Several countries, including **Japan, the USA, China, Sweden, Denmark, and Korea**, already use DME to power vehicles. However, the use of DME in internal combustion engines is relatively unexplored in India.
- Researchers at IIT Kanpur have developed **India's first 100% Dimethyl Ether (DME)-fuelled tractor/vehicle**, marking a significant step towards a sustainable alternative fuel-based transport system.
- The research is overheated by the **Science and Engineering Research Board (SERB)** (under the Department of Science and Technology (DST) and is aligned with the **'Methanol Economy'** program of NITI Ayog.

Vaccine-derived polio cases

These are instances where the poliovirus in the **oral polio vaccine (OPV) mutates and causes paralysis** in vaccinated individuals or spreads to others in the community. These cases occur when the weakened virus in the vaccine reverts to a form that can cause disease.

To address this, researchers have **genetically modified the weakened virus**, making it more resistant to causing paralysis. The modified vaccines **have shown promising results in human trials, providing more stability and addressing the instability concern (leading to Vaccine-derived polio cases.**

However, challenges **remain in achieving full coverage and delivering vaccines to impoverished and conflict-affected areas**.

Poliomyelitis, also known as polio, is an infection **caused by a virus (poliovirus**). It is a serious, highly contagious disease **that can affect a person's nervous system.**There are three types of **wild poliovirus**:

- **WPV 1: still exists but efforts are going on to eradicate it.**
- **WPV 2: eradicated.**
- **WPV 3: eradicated.**

Polio typically **affects children aged 5 years or younger**. It can result in **muscle weakness, permanent disability, and even death.**

Economics

Report on Price Policy for Kharif Crop 2023-24

India's Union government announced the minimum support prices (MSPs) for 17 crops in this year's Kharif season and CACP (Commission for Agriculture Cost and Prices) released **Report on Price Policy for Kharif Crop 2023-24**

Key Policy Recommendations:

- Promote Production and Consumption of Nutri-Cereals/ Millets (Shree Anna)
- Push Towards Pulses and Oilseeds (by launching National Mission on Edible Oils (NMEO))
- Promote rice cultivation in suitable areas and reduce the area under rice in Haryana, Punjab and western Uttar Pradesh
- Address Low Yield and Yield Gap Issues (by promoting integrated crop management, new technologies etc.)
- Improve Access to Institutional Agricultural Credit
- Bring urea under the nutrient-based subsidy (NBS) regime to address the issue of imbalanced use of nutrients in agriculture
- Expand Coverage of Crop Insurance [under PM Fasal Bima Yojana (PMFBY)]
- Accelerate Farm Mechanization [under the Sub-Mission on Agricultural Mechanization (SMAM)]
- Strengthen Market Intelligence and Outlook Systems [with the help of tech solutions like AI, Big Data analytics, Machine Learning, block chain]

SCORES

SEBI's Complaints Redress System (SCORES) portal encourages investors to lodge their complaints on SCORES instead of sending physical letters. SCORES doesn't deal with complaints against companies including Unlisted/delisted companies, sick companies or a company where a moratorium order is passed, or where the company is struck off by the Registrar of Companies (RoC).

About SEBI: The Securities and Exchange Board of India (est. 1988; HQ: Mumbai) is a statutory regulatory body for securities and commodity markets in India under the ownership of the Ministry of Finance.

Kari Ishad mango

- The Kari Ishad mango prominently grown in Ankola taluk of Uttara Kannada has bagged the Geographical Indication (GI) tag from the Geographical Indications Registry under the Union Government.
- According to the Geographical Indications Journal of the government, the Kari Ishad is accepted as one of the finest quality mangoes due to its unique aroma, luscious taste, high amount of pulp, shape, and size.
- A GI is primarily an agricultural, natural or manufactured product (handicrafts and industrial goods) originating from a definite geographical territory.

Ethics & Society

EU Commission proposes a common ethics body

The **European Union's (EU) executive arm proposed** to create an **ethics body that** would set up **common rules of conduct for institutions** after the cash**-for-influence scandal.**

With the establishment of the Ethics Body there will, for the first time**, be common standards for the ethical conduct of members and a formal mechanism for coordination and exchange of views on ethical requirements among institutions**.

The new Body will have three main tasks:

- **Develop common minimum standards**– applicable to the **members of participating EU Institutions and bodies**, as well as update them when needed.
- **Exchange of views on each institution's internal rules in light of the standards** to allow them to learn and benefit from each other's experience.

- **Promote a common ethics culture of all members of EU institutions**, facilitating the public understanding of the framework both to those inside and outside the institutions. Transparency will apply also to the application of these rules in the institutions.

The role of the state in regulating personal relationships and defining moral norms

- Minimal Intervention
- Protecting Individual Rights
- Promoting Public Morality
- Cultural and Democratic Influence

Statistics of Tourism in India

- Attracted only **11 million tourists in 2019**.
- India's Tourism is ranked **10th position in terms of its contribution to World GDP** (Gross Domestic Product) in the **World Travel and Tourism Council's report in 2019.**
- During 2019, the **contribution of travel & tourism to GDP was 6.8% of the total economy**.
- In FY20, the tourism sector in India accounted for **39 million jobs, which was 8.0% of the total employment in the country.**By 2029, it is expected to account for about 53 million jobs.