

# Factly Weekly

**Compilation**

2024

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Exam**

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## UPSC Syllabus: Science and technology

### Mpox (Monkeypox) outbreak

#### Why in News?

The World Health Organization has raised its highest level of alert and has declared Mpox as a Public Health Emergency of International Concern.



Source- Indian Express

#### About Mpox (MonkeyPox)

<b>About</b>	It is a <b>viral infection</b> caused by the monkeypox virus (MPXV). It was <b>first reported in humans in 1970</b> , predominantly in African regions.
<b>Types</b>	There are two known types (clades) of mpox virus a. <b>Clade I</b> - It originated in Central Africa b. <b>Clade II</b> - It originated in West Africa
<b>Symptoms</b>	<b>Fever, headache, muscle aches, back pain, low energy, swollen lymph nodes, and pox-like rashes</b> which last for about 2-3 weeks.
<b>Transmission</b>	It can spread from animals to humans (zoonotic transmission) or between humans (through direct contact with body fluids or sexual contact)

#### Why has become Mpox ( MonkeyPox) Public Health Emergency of International Concern?

- 1. Discovery of New type/Clade (Clade Ib):** This new variant, **Clade Ib**, is spreading more through sexual contact, unlike previous strains that mainly spread through animal-to-human transmission.
- 2. Exponential increase in Spread:** Over 99,000 cases and 208 deaths have been reported globally since 2022. The virus has been mutating and diversifying, making it harder to control.
- 3. New areas of Geographic Spread:** New cases of Clade Ib have been reported in Burundi, Kenya, Rwanda, and Uganda. These are the countries that previously did not have mpox cases.

#### Vaccines and Preventative Measures being taken

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1. Two vaccines are recommended by WHO for mpox. WHO is working to ensure vaccines are available in low-income countries through emergency listings and partnerships.
2. WHO and health experts emphasize the need for a coordinated global response to prevent further spread and potential fatalities.

### EOS-08- Earth Observation Satellite

#### Why in News?

ISRO has successfully launched the EOS-08 Earth Observation Satellite through the Small Satellite Launch Vehicle (SSLV-D3) from the Satish Dhawan Space Centre (SDSC) in Sriharikota.

#### About EOS-08 Earth Observation Satellite



Source: ISRO

Aspects	Description
<b>About the satellite</b>	The EOS-08 is an Earth Observation Satellite built on ISRO's Microsat/IMS-1 bus platform. It is designed to operate in a circular Low Earth Orbit (LEO) at an altitude of 475 km and has a mission life of one year.
<b>Technological Advancements</b>	<ol style="list-style-type: none"><li>1. The EOS-08 satellite includes an Integrated Avionics System that combines communication, baseband, storage, and positioning (CBSP) functions.</li><li>2. It also has a structural panel with an embedded printed circuit board (PCB) and battery.</li></ol>
<b>Mission Significance</b>	<ol style="list-style-type: none"><li>1. The successful launch of SSLV-D3 and the precise orbit placement of the EOS-08 satellite are major milestones for ISRO.</li><li>2. This mission enhances India's Earth observation abilities and showcases new advancements in satellite technology.</li></ol>



## About the key payloads

The EOS-08 satellite carries three key payloads:

**1. Electro Optical Infrared Payload (EOIR):** The EOIR captures images in the Mid-Wave Infrared (MIR) and Long-Wave Infrared (LWIR) bands. It operates day and night, supporting applications like satellite-based surveillance, disaster and environmental monitoring, fire detection, volcanic activity tracking, and industrial disaster monitoring.

**2. Global Navigation Satellite System — Reflectometry (GNSS-R) Payload:** The GNSS-R payload demonstrates remote sensing using GNSS-R for applications like measuring ocean surface winds, detecting soil moisture, monitoring the Himalayan cryosphere, and identifying floods and inland water bodies.

**3. SiC UV Dosimeter:** The SiC UV dosimeter measures UV radiation.

## Arogya Maitri Disaster Management Cube

### Why in News?

Recently, the Indian Air Force (IAF) successfully conducted trials of airdropping its Arogya Maitri Disaster Management Cube in Agra.

### About Arogya Maitri Disaster Management Cube



Figure 1. Source: IE

1. It is a cutting-edge mobile hospital developed by the Indian Air Force (IAF).

2. It is a part of the Army's broader BHISHM initiative (Bharat Health Initiative for Sahyog, Hita, and Maitri).

3. The cube is designed to be deployed within 12 minutes, ensuring swift response during emergencies.

4. It is equipped to treat up to 200 casualties, providing comprehensive medical care in disaster-

stricken areas.

### 5. Advanced Technology Integration:

i) The cube includes a tablet with the BHISHM software system, enabling quick item location, usage monitoring, and readiness for future deployments.

ii) It incorporates Artificial Intelligence (AI) and data analytics for real-time monitoring, effective coordination, and efficient management of medical services in the field.

**6. Versatility and Transportability:** The unit comprises 72 lightweight, easy-to-transport components, which can be carried by hand, cycle, or even drone. This flexibility allows for deployment in various challenging environments, making it ideal for mass casualty incidents.

7. The cube is waterproof and durable, ensuring it can be used in any emergency situation. After use, it can be efficiently repacked and redeployed, maintaining its readiness for subsequent operations.

**8. Significance:** The cube's ability to bridge the critical time gap between primary and definitive care can potentially save numerous lives during the golden hour of emergencies.

## Jupiter Icy Moons Explorer (JUICE) Mission

### Why in News?

The European Space Agency's Jupiter Icy Moons Explorer (JUICE) is returning towards Earth on August 19-20. It will perform a lunar-earth double fly-by manoeuvre, and then continue its journey to Jupiter.

### About the JUICE Mission



**1. About:** Jupiter Icy Moons Explorer (JUICE) mission is to explore Jupiter and its three large moons: Callisto, Europa, and Ganymede. These moons are of particular interest because they may harbour conditions that could support life.

**2. Initiated by:** This mission has been initiated by the European Space Agency (ESA).

**3. Launch duration:** The JUICE mission was launched in 2023. It will reach Jupiter and its moons by 2031, after an eight-year journey.

**4. Significance:** This mission is the first-ever lunar-Earth flyby combined with the first-ever double gravity assist manoeuvre.

### Double gravity assist manoeuvre as part of the mission

Initially, JUICE will use the Moon's gravity to set the correct path toward Earth (First Gravity assist manoeuvre). Then, it will use Earth's gravity to slow down, and take a shortcut towards Venus. (Second assist manoeuvre)

After this double flyby, JUICE will continue its journey to Jupiter with additional gravity assists from Venus in 2025 and Earth again in 2026 and 2029. These assists are crucial for steering JUICE without needing a large rocket.

### About gravity assist technique

**1. About:** Gravity assist is a method to change a spacecraft's speed and direction by flying close to a planet or moon. This allows the spacecraft to use the gravitational pull to speed up, slow down, or change its course without using much fuel.

**2. Significance of the technique:** The gravity assist method is a proven way to navigate the solar system efficiently. For ex- By taking advantage of the Moon's and Earth's positions, JUICE can reach Jupiter with a smaller rocket and less fuel, making the mission more feasible.

**3. Challenges:** The double flyby is **complex** and **risky**. Any mistake could throw the spacecraft off course, requiring more fuel to correct, which could endanger the mission.

**Difference between Gravity Assist Manoeuvre and Double Gravity Assist Manoeuvre**

Gravity Assist Manoeuvre	Double Gravity Assist Manoeuvre
1. In a gravity assist, the <b>spacecraft flies close to a single planet or moon</b> . 2. The gravity of that body pulls on the spacecraft, altering its speed and direction. 3. This can either speed up or slow down the spacecraft without using additional fuel.	1. In a double gravity assist, the <b>spacecraft performs gravity assists with two different celestial bodies</b> . 2. The first gravity assist changes the spacecraft's trajectory and speed, preparing it for the second assist, which further refines its path.
<b>Example:</b> A spacecraft passing close to Jupiter to gain speed and head towards Saturn.	<b>Example:</b> A spacecraft using a gravity assist from Venus to gain speed, followed by another assist from Earth to adjust its course towards Mars

Read more: [JUICE Mission](#)

**US FDA Approves First Nasal Spray for anaphylaxis**

**Why in News?**

Recently, the US Food and Drug Administration (FDA) has approved Neffy. It is the first-ever nasal spray designed to treat anaphylaxis, which is a severe and life-threatening allergic reaction that requires immediate medical attention and an injection of epinephrine. The US FDA has approved the 2 mg version for treatment.

**US FDA Approves First Nasal Spray for Severe Allergies**



Figure 2. Source: IE

1. It has been designed for the **emergency treatment of Type I allergic reactions**. This approval is **for adults and children weighing at least 30 kg**.

**2, Impact of FDA Approval:** The approval of Neffy could be transformative, particularly in low- and middle-income countries where access to **epinephrine** auto-injectors is limited. Neffy also showed comparable effects on increasing blood pressure and heart rate, where both are critical factors in treating anaphylaxis.

**3. Benefits for Children:** Neffy's nasal spray format is expected to be particularly beneficial for children, who often fear injections and may struggle with self-administration. It is a simpler, more accessible method of administering life-saving treatment.

**Note:** **Epinephrine** is a hormone and neurotransmitter used to treat allergic reactions, restore cardiac rhythm, and manage conditions such as mucosal congestion, glaucoma, and asthma, making it the only life-saving treatment for anaphylaxis.

**About Anaphylaxis**



1. Anaphylaxis is a **severe and potentially life-threatening allergic reaction** that can occur rapidly after exposure to an allergen.
2. Symptoms can appear within seconds or minutes of exposure to the allergen, such as peanuts, bee stings, certain foods, some medications, insect venom, or latex.
3. **Symptoms:** It includes sudden drop in blood pressure, narrowing of the airways, leading to difficulty breathing, rapid and weak pulse, skin rash and nausea and vomiting.
4. **Immune Response:** Anaphylaxis triggers the immune system to release a large amount of chemicals, leading to shock.
5. **Treatment:** It requires an immediate injection of epinephrine. Without prompt treatment, anaphylaxis can be fatal. If epinephrine is unavailable, emergency medical care should be sought immediately.

**Note:** The most common allergens include certain foods like nuts, milk, fish, and specific fruits; medications such as vaccines, anti-inflammatories, and antibiotics; and insect venom, particularly from wasp and bee stings.

### Status of Anaphylaxis in India

The incidence of anaphylaxis in India is under-reported, partly due to the condition being spread across various medical specialities.

It has been found that **food-induced anaphylaxis is becoming more common in India**, making Neffy a promising development for the country's healthcare.

## Genome Editing and TnpB

### Why in News?

Researchers have developed a plant genome editor using a protein derived from *Deinococcus radiodurans* bacteria, known for surviving extreme conditions.

### About Genome Editing

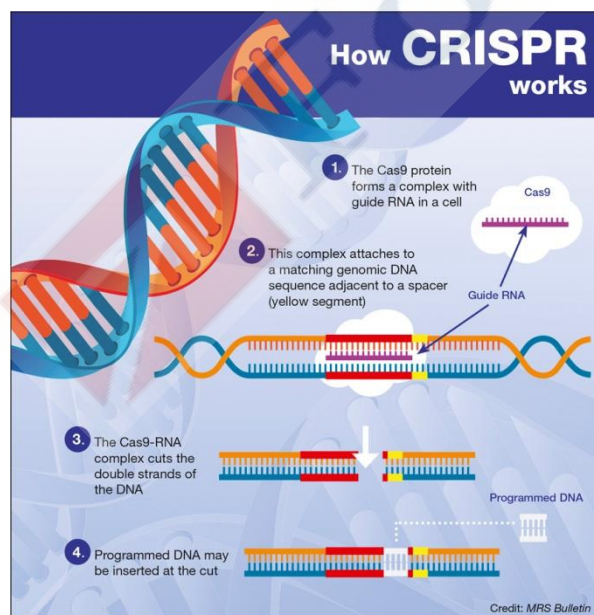


Figure 3. Source: Cambridge university

1. Genome editing is a technology that allows scientists to make precise changes to DNA which can lead to alterations in physical traits, such as eye color, and influence the risk of diseases.

**2. How Genome Editing Works:** These technologies work like scissors, cutting the DNA at a specific location. After the cut, scientists can remove, add, or replace segments of DNA to achieve the desired changes.

**3. Evolution of Genome Editing Technologies:** The first genome editing technologies emerged in the late 1900s, marking the beginning of our ability to manipulate DNA at specific sites.

**4. Introduction of CRISPR:** Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is a gene editing technology, which replicates natural defence mechanism in bacteria to fight virus attacks, using a special protein called Cas9. This technology has

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made DNA editing simpler, faster, cheaper, and more accurate.

**6. Challenges with CRISPR in Plants:** CRISPR is often too big to work effectively in plant cells. The main proteins it uses that are Cas9 and Cas12 are too bulky which make it challenging to use in plant genome editing.

### About TnpB

**1. About:** TnpB is a small transposons protein from the bacterium "Deinococcus radiodurans" that is used for precise genome editing.

**Note:** Transposons are a group of genes that can move within the genome.

**2. Composition:** It is made of around 400 amino acids. It is less than half the size of Cas9 and Cas12.

**3. How TnpB Works:** TnpB works by binding to specific DNA sequences and using RNA to guide the removal or modification of unwanted genetic material. This precise editing capability allows for targeted changes in plant genes, leading to improvements in desirable traits such as yield, disease resistance, or nutritional content.

4. The TnpB system has achieved an editing success rate of 33.58% in plant genomes, which is higher than traditional CRISPR methods for some targets. It has been effective in both monocot and dicot plants.

5. To enhance TnpB's efficiency in plants, researchers have modified its genetic code to better align with plant biology and optimized the elements that control its expression. This makes TnpB a promising tool for advanced plant genome editing.

**6. Potential Benefits:** This new genome editing tool could help develop crops that are more resistant to pests, less prone to damage from weather like cyclones, and free of harmful anti-nutrient factors.

### Difference between TnpB and CRISPR

Point of differences	TnpB	CRISPR
<b>Size and Delivery</b>	Smaller and easier to deliver into cells, especially useful in plants.	Larger, making delivery more complex, but widely adaptable.
<b>Targeting Mechanism</b>	Uses a specific sequence (TAM) for precise DNA targeting, with high specificity.	Targets DNA using a PAM sequence with guide RNA, effective but sometimes limited by PAM availability.
<b>Efficiency</b>	Achieves a 33.58% success rate in plant genomes, potentially more effective for certain targets.	Generally efficient but can vary depending on the target site.
<b>Versatility</b>	Newer and mainly focused on plants, with potential for growth in other areas.	Highly versatile, used across many fields, from agriculture to medicine.

Read More: [Human genome editing](#)

## UPSC Syllabus: Defence

ICGS Sujay

### Why in News?

Recently, ICGS Sujay made a port call in Jakarta, Indonesia.

### About ICGS Sujay

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Source: PIB

Aspects	Description
About	<ol style="list-style-type: none"> <li>1. It is an <b>Offshore Patrol Vessel (OPV)</b> of the Indian Coast Guard (ICG).</li> <li>2. It is stationed at <b>Paradip, Odisha</b>.</li> <li>3. It operates under the <b>command of the Commander of Coast Guard Region (North-East)</b> and is frequently deployed for various missions.</li> </ol>
Features	<ol style="list-style-type: none"> <li>1. It is <b>equipped with a 30mm CRN 91 gun</b> and features <b>advanced navigational and communication systems, sensors, and machinery</b>.</li> <li>2. It is a <b>105-meter vessel, crewed by 12 officers and 94 men</b>. Two women ICG officers also participated in bilateral cooperative engagements, representing <b>“Women in Maritime Security and Safety.”</b></li> <li>3. The ship is <b>designed for extended deployment in various maritime zones</b>, carrying out diverse missions such as <b>surveillance, search and rescue, and law enforcement</b>.</li> </ol>
Professional Interactions & Engagements	<ol style="list-style-type: none"> <li>1. The crew of ICGS Sujay took part in professional exchanges focused on <b>Marine Pollution Response (MPR), Maritime Search and Rescue (M-SAR), and Maritime Law Enforcement</b>.</li> <li>2. The <b>10 National Cadet Corps (NCC) cadets on board ICGS Sujay will join local youth organizations in an Environmental Protection Walkathon</b> focused on combating marine plastic pollution.</li> </ol>
Significance of the Deployment	<ol style="list-style-type: none"> <li><b>1. MoU with BAKAMLA:</b> The deployment follows the Memorandum of Understanding signed between the <b>Indian Coast Guard and BAKAMLA on July 06, 2020</b>, to enhance maritime cooperation.</li> <li><b>2. Reinforcing Bilateral Relationships:</b> The <b>deployment strengthens ties with key maritime agencies</b>, emphasizing safety, security, and environmental sustainability in the region.</li> <li><b>3. Addressing Maritime Challenges:</b> It aims to <b>tackle contemporary maritime challenges</b> through collaborative efforts.</li> </ol>

## Shaurya Sampravah 1.0

### Why in News?

Recently, the Indian Army hosted Shaurya Sampravah 1.0 at the Manekshaw Centre in Delhi.

### About Shaurya Sampravah 1.0

1. The Indian Army held a significant event called Shaurya Sampravah 1.0 at the Manekshaw Centre in Delhi on 19th August 2024.

2. This event was organized to strengthen coordination between the Indian Army and its veteran officers, focusing on a strategic vision for nation-building.

### 3. Purpose of the Event:

i) The event was a platform for sharing ideas between the current Army leadership and veteran officers.

ii) The goal was to utilize the experience and wisdom of veterans to boost the Army's transformation initiatives. This event also aims to support the Nation's objectives, especially the vision of Viksit Bharat@2047.

### Key Features of the Event

**1. Decade of Transformation Roadmap:** A detailed plan outlining the Army's strategic vision for the next ten years. It focuses on modernization, technological innovation, and enhancing operational capabilities.

**2. Modernization Initiatives:** Discussions on the Indian Army's ongoing efforts to absorb advanced technology and improve inventory and capabilities. It also emphasizes the Army's commitment to staying at the forefront of military innovations.

**3. Efficiency and Effectiveness:** Presentations were done on refining the Army's systems, processes, and functions to enhance overall efficiency and effectiveness.

**4. Role in Nation Building:** Discussions on how the Indian Army is contributing to nation-building and its vision for the future took place at the event.

## UPSC Syllabus: World Geography

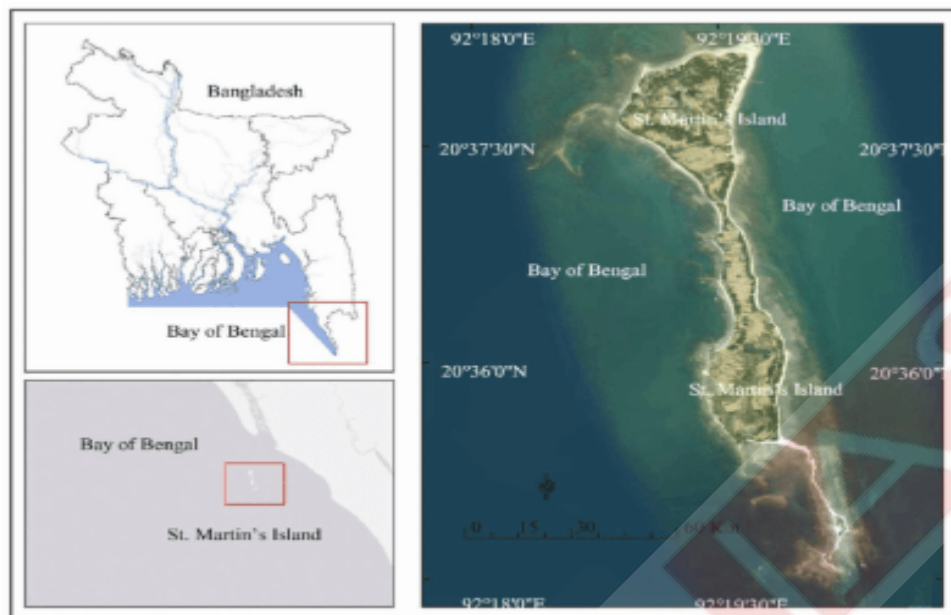
### St Martin's Island

### Why in News?

Recently, Sajeeb Wazed, son of former Bangladesh PM Sheikh Hasina, has dismissed the report claiming that Sheikh Hasina could have stayed in power by handing over Bangladesh's St. Martin's Island to America.

### About St Martin's Island

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Source: Researchgate

Aspects	Description
<b>About</b>	<ol style="list-style-type: none"> <li>1. St Martin's Island is situated in the <b>northeastern region of the Bay of Bengal</b>, near the border between Bangladesh and Myanmar.</li> <li>2. It is located <b>nine kilometers</b> from the southern tip of Bangladesh's Cox's Bazar-Teknaf peninsula.</li> <li>3. The island is 7.3 km long and flat. It has an elevation of 3.6 meters above sea level.</li> <li>4. It is <b>Bangladesh's only coral island</b>, surrounded by reefs located 10-15 km to the west-northwest.</li> </ol>
<b>History</b>	<ol style="list-style-type: none"> <li>1. In the 18th Century, Arab merchants were among the first to settle on the island.</li> <li>2. They initially named it "<b>Jazira</b>" (meaning "the island") and later changed it to "Narikel Jinjira" or "<b>Coconut Island</b>."</li> <li>3. The island was annexed by British India during a land survey in 1900. During this time, the island became known as St Martin's Island, reportedly named after the then Deputy Commissioner of Chittagong, Martin.</li> </ol>
<b>Submersion and Resurfacing</b>	<ol style="list-style-type: none"> <li>1. It was originally part of the <b>Teknaf peninsula</b>. However, the island was submerged into the sea around 5,000 years ago.</li> <li>2. The <b>southern part resurfaced about 450 years ago</b>, with the northern parts rising above sea level in the following century.</li> </ol>
<b>Population and Tourism</b>	<ol style="list-style-type: none"> <li>1. The island has a <b>permanent population of approximately 10,000 people</b>.</li> <li>2. St Martin's Island is a popular tourist spot, with an average of 10,000 tourists visiting and staying on the island daily.</li> </ol>
<b>Strategic Importance</b>	<p>The island's proximity to both Bangladesh and Myanmar. It's position in the Bay of Bengal, makes it <b>strategically important in regional geopolitics</b>.</p>



<b>Cultural Significance</b>	The island has a <b>mixed cultural heritage</b> , with influences from both <b>Bengali</b> and <b>Rakhine communities</b> , as well as the early Arab settlers.
<b>Environmental Significance</b>	St Martin's Island holds significant environmental importance as it is both a coral island and a breeding ground for sea turtles.

## Shiveluch Volcano

### Why in News?

The Shiveluch volcano in Russia recently erupted following a 7.0-magnitude earthquake that occurred off the country's eastern coast.

### About Shiveluch Volcano

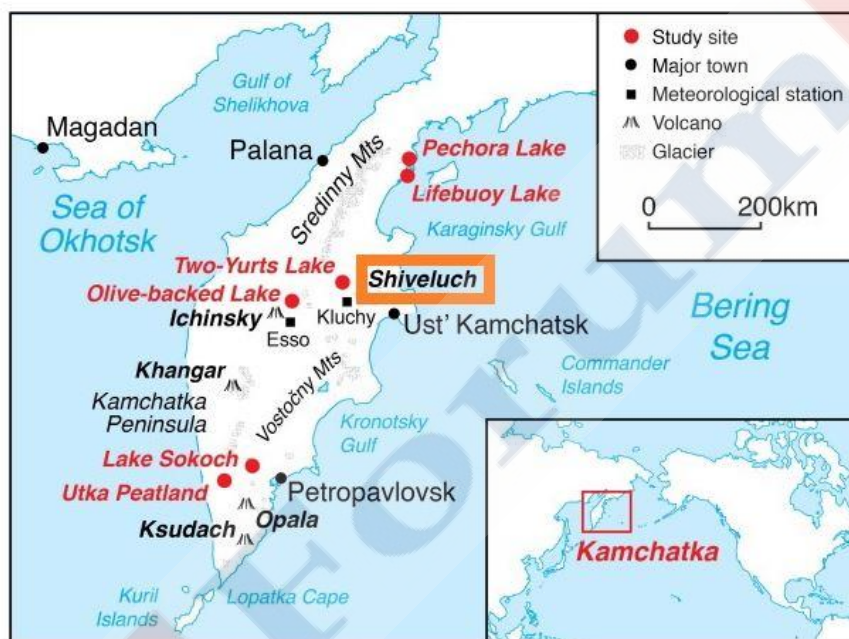


Figure 4. Source: Copyright infringement not intended

**1. About:** It is a stratovolcano characterized by its composition of alternating layers of solidified ash, hardened lava, and volcanic rocks.

**2. Location:** It is the northernmost active volcano in Kamchatka Krai, Russia.

3. Shiveluch is one of Kamchatka's most active volcanic structures, with at least 60 significant eruptions recorded during the Holocene period. Its current phase of activity began around 900 BC and continues to this day, with frequent eruptions.

4. Eruptions from Shiveluch often produce volcanic ash emissions that can disrupt

air traffic, particularly on routes connecting Asia and North America.

5. In 2024, Shiveluch experienced a major eruption following a powerful 7.0 magnitude earthquake off the east coast of Kamchatka. This event is part of the ongoing active phase of the volcano.

### About Kamchatka Peninsula

1. It is situated in the **far eastern part of Russia**. It is **bounded by the Sea of Okhotsk** to the west and the Pacific Ocean to the east.

2. The peninsula stretches about 1,250 kilometers (780 miles) in length.

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3. It is home to over 160 volcanoes, 29 of which are active. Notable volcanoes include Klyuchevskaya Sopka (the tallest) and Kronotsky (famous for its cone shape).
4. It is also home to the Valley of Geysers which is one of the largest geothermal fields in the world. It is also UNESCO World heritage site.
5. **Climate:** It is characterized by long, cold winters and short, cool summers. Coastal areas have milder temperatures, while the interior experiences more extreme cold. Heavy snowfall and frequent fog are common over there. Rivers and streams are abundant with Pacific salmon.
6. **Flora and Fauna:** It is rich in biodiversity. It is dominated by Coniferous forests with tundra landscapes in the northern areas.
7. It is famous for its large population of brown bears, especially during the salmon spawning season. Marine animals such as seals, sea lions, and whales are also found there.
8. **Cultural and Historical Significance:** The area is inhabited by indigenous peoples like the Itelmen, Koryaks, and Evens for thousands of years. The first Russian settlement established in the late 17th century. It also served as a strategic military region during the Soviet era.

## UPSC Syllabus: Indian Economy

### Krishi-Decision Support System (Krishi-DSS)

#### Why in News?

The Union government has introduced a digital geospatial platform called Krishi-Decision Support System (Krishi-DSS).



Figure 5. Source- PIB

#### About Krishi-DSS:

**1. About-** It is a digital geospatial platform. This platform offers easy access to comprehensive agricultural data across India. It includes satellite images, weather updates, water reservoir storage, groundwater levels, and soil health information.

**2. Developed by:** Krishi-DSS was developed jointly

by the Ministry of Agriculture and the Department of Space. The platform captures detailed information from large fields down to the smallest soil particles.

#### Features of the Krishi-DSS

## Factly Compilation August (Third Week) 2024

- 1. Monitoring Cropping Patterns:** Krishi-DSS allows the government to analyze cropping patterns by studying crop maps from different years. This analysis helps in understanding trends and making informed decisions for agricultural planning.
- 2. Drought Monitoring and Real-Time Data:** The platform provides near real-time data on important indicators like soil moisture, water storage, crop conditions, and dry spells, helping the government to anticipate and manage droughts effectively.
- 3. Crop Weather Watch:** Krishi-DSS includes a Crop Weather Watch feature that keeps the government updated on how weather impacts crops. It also tracks crop harvest status and crop residue burning, providing valuable insights for agricultural management.
- 4. Field-Parcel Segmentation:** The platform offers field-parcel segmentation, allowing the government to identify individual field-parcel units. This helps in understanding the unique needs of each parcel, enabling targeted interventions and better crop management.
- 5. One Nation-One Soil Information System:** Krishi-DSS includes a comprehensive soil information system with data on soil type, pH levels, and soil health. This soil data helps in assessing crop suitability and land capability, crucial for soil and water conservation measures.
- 6. Support for Innovation and Research:** The platform provides a ground-truth data library, offering essential resources for researchers and the agriculture industry.

## UPSC Syllabus: Indian Economy (Agriculture)

### Offshore Areas Mineral Trust Rules, 2024

#### Why in News?

The government has introduced the Offshore Areas Mineral (Auction) Rules, 2024, to ensure a transparent and competitive process for auctioning offshore mineral resources.

#### About Offshore Areas Mineral Trust Rules, 2024

These rules provide a clear framework for exploring and sustainably developing these resources. Key aspects include:

- 1. Key Definitions-** The rules define important terms like “Act,” “Chairperson of the Executive Committee,” “Chairperson of the Governing Body,” “Fund,” “Governing Body,” and “Trust.”
- 2. Membership of the Governing Body and Executive Committee-** The Central Government to determine the composition of both the Governing Body (which includes ex-officio members and special invitees) and the Executive Committee (which includes ex-officio members with voting rights).
- 3. Functions of Governing Body and Executive Committee-** The Governing Body will set policy guidelines and oversees the off Shore Mineral Area Trust’s operations. The Executive Committee will manage and supervise the Trust, following the Governing Body’s directions.
- 4. Identification of Offshore Areas-** Offshore geological potential areas to be identified by the Geological Survey of India.
- 5. Offshore Areas Mineral Trust Fund-** The “Offshore Areas Mineral Trust Fund,” to be managed by the Executive Committee.



## PROMPT Portal

### Why in News?

Recently, the Union Minister of Power and Minister for Housing and Urban Affairs, launched the Portal for Online Monitoring of Projects Thermal (PROMPT) in New Delhi.

### About the PROMPT Portal



Figure 6. Source: PIB

**1. About:** The Portal for Online Monitoring of Projects – Thermal (PROMPT) is a digital platform to monitor thermal power projects online.

2. The portal was developed with the assistance of NTPC (National Thermal Power Corporation)

### 3. Benefits of PROMPT:

**i) Real-Time Tracking and Analysis:** The portal offers a centralized platform to monitor all aspects of project execution, allowing for quick identification and resolution of potential issues.

**ii) Transparency and Accountability:** By digitizing the monitoring process, the portal

increases transparency in project management, reducing delays, cost overruns, and improving overall project efficiency.

**iii) Resource Optimization:** The portal ensures resources are available when needed, helping to meet the country's electricity demand at an affordable price, ultimately benefiting consumers.

### About Central Electricity Authority (CEA)

1. The Central Electricity Authority (CEA) of India is a statutory organization that operates under the Ministry of Power.
2. It was established by the Electricity Supply Act of 1948 and now governed by the Electricity Act of 2003.
3. The CEA plays a crucial role in planning and managing India's power sector.
4. Its primary mandate is to advise the government on electricity generation, transmission, and distribution, ensuring a reliable and efficient power supply across the country.

## JAL VIDYUT DPR portal

### Why in News?

Union Minister Shri Manohar Lal, Minister of Power and Minister for Housing and Urban Affairs recently launched the JAL VIDYUT DPR portal. The event took place on 20th August 2024 in New Delhi.

### About JAL VIDYUT DPR portal



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**1. Developed by:** The JAL VIDYUT DPR portal is a **digital platform** developed by the **Central Electricity Authority (CEA)**.

**2. Purpose:** It is designed to **monitor survey and investigation activities** related to Hydro Electric Projects and Pumped Storage Projects (PSPs).

**3. Aim:** It aims to **expedite workflows and streamline communication between developers and appraising agencies**. It aligns with the government's **ease of doing business initiatives** by reducing timelines for appraisals and approvals of DPRs.

### 4. Key Features and Benefits

**1. Strategic Initiative for Hydropower Development:** The portal supports the **development of hydropower and PSPs** which are essential for **grid stability and energy transition**.

**2. Improved Project Management and Coordination:** It provides a **comprehensive overview of a project's development status**. It **enhances coordination** among various stakeholders during the Detailed Project Report (DPR) preparation process.

**3. Centralized Digital Platform:** It also **offers a single platform for monitoring all survey and investigation activities** related to Hydro and PSP projects.

**4. Enhanced Efficiency and Transparency:** It **enables real-time tracking of tasks** and pending actions.

## UPSC Syllabus: Index and reports

### Justice Hema Committee Report

#### Why in News?

The Kerala government has recently released the Justice Hema Committee report. The report's release was postponed for nearly five years, mainly due to concerns about the sensitive information it contained and the potential breach of privacy for those involved.

#### About the Justice Hema Committee



Figure 7. Source: IE

#### Committee Report

1. The Justice Hema Committee was formed by the Kerala government in July 2017.

2. It was formed in response to the **abduction and sexual assault of a leading Malayalam actress**, which highlighted the broader issue of discrimination against women in the Malayalam film industry.

3. The committee was **tasked with investigating issues of sexual harassment**

**and gender inequality** in the industry.

#### Key Findings of the Justice Hema

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- 1. Prevalence of Sexual Harassment:** The report reveals a **pervasive culture of sexual harassment in the Malayalam film industry**, including the existence of the casting couch, vulgar comments, and instances where male co-actors would force themselves into the rooms of female colleagues.
- 2. Fear of Retribution:** Many women in the industry **do not report sexual harassment due to fear of retribution**. The report notes that this fear is well-founded, with women also **facing cyber harassment from fan clubs** as a form of intimidation.
- 3. Influence of a Male-Dominated Mafia:** The report highlights the existence of an **all-male “mafia” of influential actors and producers who control the industry**, wielding their power with impunity and suppressing any opposition.
- 4. Lack of Basic Facilities for Women:** The report points out the **inadequate facilities for women on film sets, such as the lack of proper toilets and changing rooms**, which exposes women to health risks like urinary tract infections.
- 5. Gender Pay Disparity:** The report attributes the **gender pay gap in the industry to the absence of written contracts**, which disproportionately affects women.

## UPSC Syllabus: Reports and indices

### Findings of Migration Survey in India (2020-21)

#### Why in News?

The findings of migration Survey in India (2020-21) were released recently.

#### Key Findings from the Migration Survey in India (2020-21)

Aspects	Description
Largest Migrant Group	Migrants moving from Uttar Pradesh (U.P.) to Maharashtra constituted the largest group of all external migrants.
Top Host States for External Migrants	Maharashtra hosted the highest share of external migrants, followed by Uttar Pradesh and West Bengal.
Major Contributor States	Uttar Pradesh was the leading contributor of migrants, followed by Maharashtra, West Bengal, and Bihar.
Significant Migration Corridors	The U.P. to Maharashtra migration route was the most significant for external migrants, followed by migrations from Gulf countries to Kerala and from U.P. to Delhi.
Economic Migration	1. Approximately 22% of migrants moved for economic reasons, including better employment prospects, business, and service transfers. 2. The largest economic migration flows were from U.P. to Maharashtra, U.P. to

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	Delhi, and Bihar to West Bengal.
Marriage as a Major Migration Reason	1) Marriage accounted for 68.2% of all migration reasons. 2) The top migration routes due to marriage were from U.P. to Maharashtra, Bihar to Jharkhand, and Madhya Pradesh to U.P.
Top Migrant-Hosting Districts	Suburban Mumbai hosted the highest number of migrants, followed by Pune and Thane in Maharashtra.

## UPSC Syllabus: Index and reports

### Multidimensional Vulnerability Index

#### Why in News?

Recently, the UN General Assembly officially launched the “Multidimensional Vulnerability Index” (MVI) aimed at providing small island states and developing nations with better access to low-interest financing.

#### About Multidimensional Vulnerability Index (MVI)

Aspects	Description
About	1) The Multidimensional Vulnerability Index (MVI) is a newly established international quantitative benchmark. 2) It is designed to measure structural vulnerability and the lack of structural resilience across various dimensions of sustainable development at the national level. The United Nations is actively collaborating with SIDS to develop and implement the MVI.
Purpose	1) The MVI is designed to complement traditional development metrics like GDP. 2) It aims to address the specific needs of small island developing states (SIDS) and other developing nations that face unique vulnerabilities but do not qualify for low-interest development financing based on GDP per capita alone.
Key Indicators in the MVI	The MVI incorporates a range of indicators reflecting a state’s structural vulnerabilities and lack of resilience, including: i) Import dependency ii) Exposure to extreme weather events and pandemics iii) Impacts of regional violence and refugee crises iv) Demographic pressure v) Availability of water and arable land resources vi) Child mortality under the age of five
Limitations of Traditional Measures	1) Traditional metrics, such as Gross National Income (GNI), often fail to adequately capture the vulnerabilities faced by SIDS. 2) These traditional measures make it difficult for SIDS to access necessary financing for development.
Applications of the MVI	The MVI will play a crucial role in guiding: i) Programmatic support for SIDS ii) Viable debt service payment strategies

iii) Financing for sustainable development initiatives tailored to the specific challenges of SIDS.
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## UPSC Syllabus: Polity and nation

### First Digital Court for Cheque Bounce Cases

#### Why in News?

Recently, Justice Bhushan Ramkrishna Gavai of the Supreme Court inaugurated India's first digital court for handling cheque bounce cases, named 24\*7 ONCOURTS in Kollam.

#### About the first Digital Court:

1. India's first digital court, 24\*7 ONCOURTS is dedicated to handling cheque bounce cases. It was inaugurated in Kollam, Kerala.

#### Key Features of the Digital Court:

1. The court will operate entirely online, from case filing to delivering judgments and orders.
2. The initiative aims to boost efficiency and reduce the backlog of cases. If successful, similar digital courts may be established across Kerala.

#### Impact on Case Handling:

1. The digital court automates the entire case life cycle, starting with cheque bounce cases, which account for about 10% of total cases.
2. Automation is expected to improve productivity and reduce the number of pending cases.
3. The ONCOURT project will begin accepting cheque dishonour cases from September 2024.
4. Extending similar automation to Motor Vehicles Act cases, which also make up around 10% of cases, could further enhance judicial efficiency.

## UPSC Syllabus: Environment

### Malabar Tree Toad

#### Why in News?

A recent study suggests that climate change could reduce the Malabar Tree Toad's distribution range by up to 68.7% within India's protected areas.

#### About Malabar Tree Toad





Source: Nature inFocus

Aspects	Description
About	<ol style="list-style-type: none"> <li>1) The Malabar Tree Toad is a rare and endangered species of amphibian native to the Western Ghats of India.</li> <li>2) They are particularly found in the states of Kerala, Karnataka, and Maharashtra.</li> <li>3) It was first discovered in 1876 and went unseen for over a century.</li> <li>4) It was rediscovered in 1980 at Silent Valley National Park in Kerala.</li> </ol>
Habitat	<ol style="list-style-type: none"> <li>1) The Malabar Tree Toad lives mainly in trees, especially in the dense canopy of tropical rainforests.</li> <li>2) It is active at night, feeding on insects and other small creatures, while during the day, it hides under leaves or in tree crevices to stay safe from predators and avoid drying out.</li> </ol>
Physical Characteristics	<ol style="list-style-type: none"> <li>1) The Malabar Tree Toad is a small, dark-colored toad, usually brown or black, with distinctive white or yellowish spots on its back.</li> <li>2) The skin is rough and covered with small tubercles, giving it a somewhat warty appearance.</li> <li>3) This toad typically measures around 3 to 4 centimeters in length, making it relatively small compared to other toad species.</li> <li>4) Its limbs are slender and well-adapted for climbing, with the fingers and toes equipped with pads that help it cling to wet surfaces.</li> </ol>
Conservation Status	The Malabar Tree Toad is listed as “Endangered” on the IUCN Red List.
Threat	Deforestation, habitat loss, and pollution are major threats to this toad.
Conservation effort	<ol style="list-style-type: none"> <li>1) Conservation efforts are focused on preserving the remaining forest habitats and protecting the water bodies that are essential for the breeding of this species.</li> <li>2) There is also an increasing interest in studying the ecology and behavior of the Malabar Tree Toad to better understand its needs and improve conservation strategies.</li> </ol>

## Project on Microplastic Contamination

### Why in News?

The Food Safety and Standards Authority of India (FSSAI) has initiated a project to evaluate microplastic contamination in food products and to develop detection methods.



Source- Discovery

### About the Project on Microplastic Contamination

Aspects	Description
About	The Food Safety and Standards Authority of India (FSSAI) has initiated a project to address the issue of microplastic contamination in food products.
Objectives	<ol style="list-style-type: none"><li>1. Develop Detection Methods: Create and validate methods to detect micro and nano-plastics in food.</li><li>2. Assess Contamination Levels: Evaluate how widespread microplastics are in food and the exposure levels for consumers in India.</li><li>3. Set Analysis Standards: Establish standard procedures for analyzing micro/nano-plastics.</li><li>4. Laboratory Testing: Conduct comparisons between different laboratories to ensure</li></ol>

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	consistent results. 5. Gather Data: Collect important data on microplastic exposure in the Indian population.
Collaborating Institutions	The project is being implemented in collaboration with leading research institutions such as CSIR-Indian Institute of Toxicology Research (Lucknow), ICAR-Central Institute of Fisheries Technology (Kochi) and Birla Institute of Technology and Science (Pilani).
Global Context	1. The Food and Agriculture Organization (FAO) has reported finding microplastics in common food items like sugar and salt. 2. While these findings are global, FSSAI emphasizes the need for India-specific data to understand the impact on public health. 3. The results of this project will not only shape regulations in India but also add to the global knowledge on microplastic contamination in food.
Commitment to Public Health	1. FSSAI is focused on ensuring that food in India is safe and healthy. 2. This project will help determine the level of microplastic contamination in Indian food and guide the creation of safety regulations.

### About Microplastics

1. Microplastics are tiny plastic particles, smaller than 5 mm in length, even tinier than a grain of rice.

#### 2. Types of Microplastics:

i) Primary Microplastics: These are intentionally manufactured as small particles for commercial purposes. They are commonly found in cosmetics, nurdles (plastic pellets used in industrial manufacturing), and fibers from synthetic textiles like nylon.

2. Secondary Microplastics: They are formed from the degradation of larger plastic items, such as bottles, fishing nets, and plastic bags. Their breakdown occurs due to environmental exposure, including sunlight radiation, wind, and ocean waves.

### About Food Safety and Standards Authority of India (FSSAI)

1. It is a statutory body established under the Food Safety and Standards Act, 2006 (FSS Act).

2. It operates independently under the jurisdiction of the Ministry of Health & Family Welfare.

3. Its primary responsibility is to protect and promote public health by regulating and supervising food safety standards.

4. **Headquarters:** New Delhi