

## NOVEMBER CURRENT AFFAIRS

### REFERENCE FUEL

#### Why in News?

India has started the **production of 'reference' grade petrol and diesel.**

The Launch of Reference Fuels produced by Indian Oil's Paradip & Panipat Refineries, utilizing the intellectual talent available at Indian Oil's Research & Development Centre, is a dynamic achievement.

#### About Reference Fuel:

- Reference fuels (Gasoline and Diesel) are **premium high-value products, used for calibration and testing of vehicles by Auto OEMs (Original Equipment Manufacturers) and organizations involved in testing and certification in the automotive field.**
- Specification requirements of Reference Fuels are **more stringent than commercial gasoline and diesel.**
- The demand of Reference Fuels in India is currently met by importing from other countries.
- India is dependent on imports to cater to the demand for this specialized fuel.
- These indigenously developed products will lead to import substitution at better price and minimum lead time for the Vehicle manufacturers.
- **Reference Gasoline fuels will be available in E0, E5, E10, E20, E85, E100 from Flagship Paradip Refinery.**
- **Reference diesel fuel shall be available in B7 grade from Panipat Refinery.**
- The biggest difference between the normal and premium fuel lies in the **octane number.**



- The regular fuel has an octane number of 87, but premium fuel has an octane number of 91. Reference grade fuel comes with a 97 octane number.
- The octane number is a unit to measure the ignition quality of petrol or diesel.
- Benefits of using Reference Fuel :-
  - **Self Reliance:** India has historically depended on imports to fulfill the need for reference fuel. Now it has been produced indigenously. This will reduce dependency on imports of reference fuel.
  - **High Octane Number:** Reference' fuel has higher octane numbers (97) compared to regular (87) and premium (91) fuels, crucial for accurate vehicle testing.
  - **Cost Advantage:** Regular petrol and diesel cost around Rs 90-96 per litre while imported 'reference' fuel is priced at Rs 800-850. Producing it domestically will lower the cost to about Rs 450 per litre.

## WHITE HYDROGEN

### Why in News?

**Scientists** looking for fossil fuels beneath the ground in northeastern France have **discovered a large reservoir of white hydrogen.**

### About White Hydrogen:

- **Natural hydrogen, also known as white or gold hydrogen, occurs naturally on or within the Earth's surface,** distinguishing it from laboratory-produced or industrial hydrogen.
- Although abundant in the universe, it **typically exists in combination with other molecules.**
- Different types of hydrogen, such as "gray," "brown," "blue," and "green," are classified based on their production processes and environmental impacts.
- The name white hydrogen distinguishes it from green hydrogen, which is produced from renewable energy sources from the electrolysis of water, and from grey, brown or black hydrogen, which is obtained from fossil sources.



- Natural hydrogen has been identified in many source rocks in areas beyond the sedimentary basins where oil companies typically operate
- There are **several sources of natural hydrogen**:
  - degassing of deep hydrogen from the Earth's crust and mantle;
  - reaction of water with ultrabasic rocks (serpentinisation);
  - contact of water with reducing agents in the Earth's mantle;
  - interaction of water with freshly exposed rock surfaces (weathering);
  - decomposition of hydroxyl ions in the structure of minerals;
  - Natural radiolysis of water;
  - decomposition of organic matter;
  - biological activity
- White hydrogen's natural occurrence distinguishes it from other forms, making it an untapped and potentially abundant source of clean energy.
- White hydrogen's discovery has implications for various industries, including aviation, shipping, and steel-making, as it can serve as a clean energy source.
- **White hydrogen has several advantages** over other types of hydrogen.
  - It **causes no CO<sub>2</sub> emissions when used as a fuel.**
  - It is **compatible with existing infrastructure and technologies for hydrogen production and utilisation.**
  - It is **cheaper and more efficient than steam reforming or electrolysis.**
  - It is **abundant and renewable.**
- White hydrogen's estimated cost is around \$1 per kilogram, significantly lower than green hydrogen, which costs about \$6 per kilogram, making it a more affordable clean energy source.
- White hydrogen deposits have been discovered globally, including in the US, eastern Europe, Russia, Australia, Oman, France, and Mali.
- It is estimated that globally, there could be tens of billions of tonnes of white hydrogen.

## PICHWAI PAINTING

### Why in News?

Chennai's Collage is hosting an art exhibition showcasing Pichwai paintings, some of which date back 350 years.

### **About Pichwai Painting:**

- **Pichwai art is a traditional style of painting that originated in Nathdwara, near Udaipur, Rajasthan, India over 400 years ago.**
- It is **traditionally created on cloth, typically khadi.**
- Pichwai literally meaning 'that which hangs from the back' from the Sanskrit words "**Pichh**" means **back** and "**wais**" means **hanging**, are large devotional Hindu painted pictures, normally on cloth, which portray Krishna.
- They are mainly made to hang in Hindu temples of the Pushtimarg devotional tradition, especially the Shrinathji Temple in Nathdwara, Rajasthan, built around 1672.
- **They are hung behind the idol of Shrinathji, a local form of Krishna** and the centre of Pushtimarg worship, to depict his leelas.
- **The purpose of pichhwais, other than artistic appeal, is to narrate tales of Krishna to the illiterate.**
- Temples have sets with different images, which are changed according to the calendar of festivals celebrating the deity.



### **Features:**

- Pichwai paintings **feature intricate designs and vibrant colours, depicting scenes from the life of Lord Krishna.**
- The **paintings are created using natural colours made from minerals and plant extracts.**
- The **themes of Pichwai paintings revolve around the various stages of Lord Krishna's life, including his childhood, youth, and adulthood.**

- Pichwai paintings are known for their **intricate details, ornate borders, and fine brushwork.**
- The art form has gained popularity worldwide and is **now being produced on various mediums such as paper, canvas, and silk.**
- The paintings **use stone pigments for gold and silver tones and vegetable dyes for vibrant colours like orange, red, chrome yellow, and kesari.**
- The detailed work is meticulous and time-consuming, **taking several months to complete a single piece.**
- The art form has evolved over time, with modern themes and influences incorporated by artist.
- In recent years, there has been a resurgence in Pichwai art, attracting younger buyers and encouraging artists to return to their hometowns in Rajasthan to learn and continue the traditional techniques.
- **Other schools of Pichwai— Nathdwara, Kishangarh and Bundi in Rajasthan.**
- The paintings are **often filled with details, such as flowers, animals, and geometric patterns,** which are arranged in a symmetrical and balanced composition.
- Some of the famous Pishwai Paintings are:
  - **Shrinathji in Black & Gold**
  - **Ras Leela – Krishna with Radha**
  - **Giriraja Pichwai** – depicting Lord Krishna carrying Govardhana mountain on his little finger.
- Pichwai paintings are regarded as an important cultural heritage of India and have been recognized by the Indian government for their cultural significance.

## CLOUD SEEDING

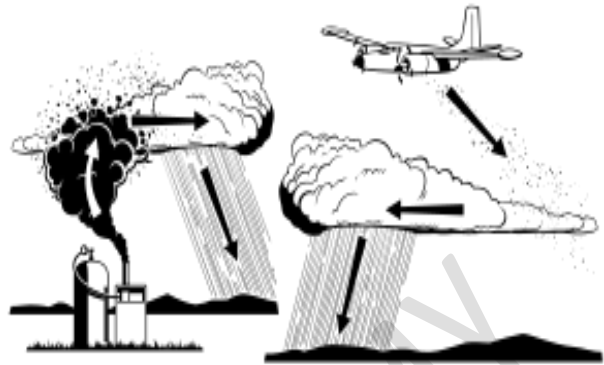
### Why in News?

The Delhi government had announced that it was considering cloud seeding or ‘artificial rain’ to wash away pollutants in the air.

### About Cloud Seeding:



- Cloud seeding is a **type of weather modification that aims to change the amount or type of precipitation that falls from clouds by dispersing substances into the air that serve as cloud condensation or ice nuclei, which alter the microphysical processes within the cloud.**



- The usual objective is to increase precipitation (rain or snow), either for its own sake or to prevent precipitation from occurring in days afterward.
- The **most common chemicals used for cloud seeding include silver iodide, potassium iodide and dry ice (solid carbon dioxide).**
- They are dispersed into the cloud either using aircraft or through generators on the ground.
- **These ‘seeds’ of rain provide a chemical ‘nuclei’ around which the condensation of water droplets is accelerated.**
- Rain happens when the condensed water droplets reach a level when it can no longer be held around the nucleus.
- Seeding accelerates cloud microphysical processes. You need sufficiently large droplets that can reach the surface of the earth and not evaporate on the way.
- The substance that is dispersed into the cloud needs to have cloud condensation nuclei and ice nuclei and these two come from two different salts.
- The cloud condensation nuclei help form cloud droplets, and ice nuclei help to form ice crystals. Ice crystals grow faster than drops, and they become large and fall.

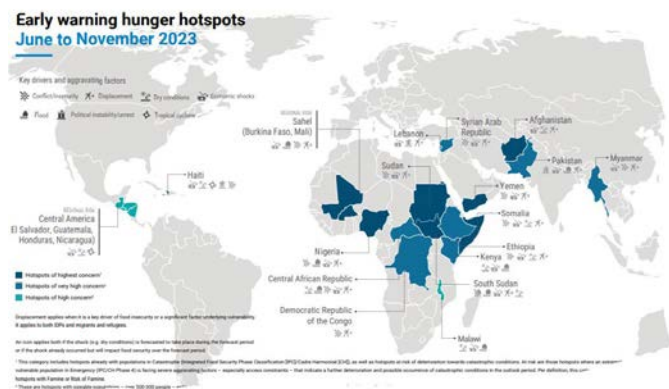
## HUNGER HOTSPOTS

### Why in News?

The FAO and WFP have issued a warning that **acute food insecurity is expected to worsen in 18 hunger hotspots**, covering 22 countries (e.g., Countries like Afghanistan, Nigeria, Somalia, South Sudan, and Yemen are at the highest concern level).

## About Hunger Hotspots:

- **Hunger hotspots are regions or countries identified by organizations like FAO and WFP where acute food insecurity is a pressing concern.**



- These areas have a **high number of people facing critical food shortages and worsening factors** that are expected to intensify life-threatening conditions in the near future.
- The **FAO and WFP have identified 18 areas in 22 countries that are at risk of experiencing increased food insecurity.**
- This is due to worsening economic conditions and the potential impact of the El Niño weather pattern.
- The report highlights the importance of addressing these vulnerabilities promptly to avoid further deterioration.
- Countries including **Afghanistan, Nigeria, Somalia, South Sudan, and Yemen** are identified as having the highest levels of concern for acute food insecurity.
- These regions already experience severe food insecurity, and various factors worsen the situation.
- The report also raises the **concern levels for Haiti, the Sahel region (Burkina Faso and Mali), and Sudan due to their vulnerable conditions.**
- Several countries, such as Pakistan, Central African Republic, Ethiopia, Kenya, Democratic Republic of the Congo, Syrian Arab Republic, and Myanmar, are considered hotspots with a significant level of concern regarding food insecurity.
- These regions have a high number of people who are experiencing severe acute food insecurity, which is made worse by worsening factors.

## Factors causing food insecurity in these hotspots

- (1) **Violence-** Population displacement, abandonment of agricultural land, loss of life and assets, disruption of trade and cropping and loss of access to markets caused by conflicts can worsen food insecurity.

- (2) **Natural Hazards**- Extreme weather conditions and climate variability are likely to affect several parts of the world during the outlook period.
- (3) **Poor humanitarian access**- Humanitarian access is limited in various ways, including administrative/bureaucratic impediments, movement restrictions, security constraints and physical constraints related to the environment.

India has implemented various initiatives to ensure food security

- **National Food Security Mission** to enhance crop production
- **PM Garib Kalyan Ann Yojana** providing free grains to those covered by the National Food Security Act
- **One Nation One Ration Card system** to address hunger issues
- **Pradhan Mantri Kisan Samman Nidhi** to support small and marginal farmers
- **National Food Security Act**, legally entitling a significant portion of the population to receive subsidized food grains under the Targeted Public Distribution System, with the eldest woman of the household as the ration card head.

## ENCORE

### Why in News?

The Election Commission of India has designed in-house software, ENCORE (Enabling Communications On Real-Time Environment), for complete Candidate and election management effectively.

### About ENCORE:

- ENCORE software stands for Enabling Communications On Real-Time Environment.
- Launched by: **Election Commission of India (ECI)**.
- This provides a seamless facility for **Returning Officers** to process candidate nomination, affidavit, Voter turnout,





counting, results and data management.

- The **ENCORE counting application is an end-to-end application for returning officers to digitize the votes polled**, tabulate the round-wise data and then take out various statutory reports of counting.
- Another application called ENCORE Scrutiny Application allows Returning Officers to do scrutiny of the nominations filed by the candidates on-line.
- After verification of the nomination the status is marked as Accepted, Rejected or Withdrawn helping the Returning Officer to prepare the final list of contesting candidates and assign the symbols.

### **About ECI : Election Commission of India**

- The Election Commission of India (ECI) is a **constitutional body.**
- It was established by the Constitution of India **to conduct and regulate elections in the country.**
- **Part XV (Article 324-329)** of the Indian Constitution: It deals with elections and establishes a commission for these matters.
- Article 324 of the Constitution provides that the power of superintendence, direction, and control of elections to parliament, state legislatures, the office of the president of India, and the office of vice-president of India shall be vested in the election commission.
- Thus, the Election Commission is an all-India body in the sense that **it is common to both the Central government and the state governments.**
- The **body administers elections to the Lok Sabha, Rajya Sabha, State Legislative Assemblies, State Legislative Councils and the offices of the President and Vice President of the country.**
- It is not concerned with the elections to panchayats and municipalities in the states. For this, the Constitution of India provides for a separate State Election Commission.
- The commission is served by its **secretariat located in New Delhi.**

- Composition:
  - Originally the commission had only one election commissioner but after the Election Commissioner Amendment Act 1989, it was made a multi-member body.
  - The Election Commission shall consist of the Chief Election Commissioner (CEC) and such number of other election commissioners, if any, as the President may from time-to-time fix.
  - **Presently, it consists of the CEC and two Election Commissioners.**
  - At the state level, the election commission is helped by the Chief Electoral Officer who is an IAS rank Officer.
- Appointment: **The President appoints CEC and Election Commissioners.**
- Tenure:
  - The tenure of election commissioners is **not prescribed by Indian Constitution.**
  - However, according to the 1991 Election Commission Act, the Chief Election Commissioner or an Election Commissioner shall **hold office for a term of six years, or up to the age of 65 years,** whichever is earlier, from the date on which he/she assumes his/her office.
- Removal:
  - They can resign anytime or can also be removed before the expiry of their term.
  - The **Chief Election Commissioner of India can be removed from their office in a manner similar to the removal of a judge of the Supreme Court of India** which requires a resolution passed by the Parliament of India a two-thirds majority in both the Lok Sabha and the Rajya Sabha on the grounds of proved misbehaviour or incapacity.
  - **Other Election Commissioners can be removed by the President of India on the recommendation of the Chief Election Commissioner.** A Chief Election Commissioner has never been impeached in India.
- Functions of ECI:
  - To **determine the territorial areas of the electoral constituencies throughout the country** on the basis of the Delimitation Commission Act of Parliament.
  - To **prepare and periodically revise electoral rolls and to register all eligible voters.**

- To **grant recognition to political parties** and allot election symbols to them.
- Election Commission **ensures a level playing field for the political parties** in election fray, through strict observance by them of a **Model Code of Conduct** evolved with the consensus of political parties.
- It **decides the election schedules for the conduct of elections**, whether general elections or bye-elections.
- Under the Constitution, the Commission has advisory jurisdiction in the matter of post-election disqualification of sitting members of Parliament and State Legislatures.
- The opinion of the Commission in all such matters is binding on the President or, as the case may be, the Governor to whom such opinion is tendered.
- Further, the cases of persons found guilty of corrupt practices at elections which come before the SC and High Courts are also referred to the Commission for its opinion on the question as to whether such person shall be disqualified and, if so, for what period.
- The **Commission is vested with quasi-judicial power to settle disputes relating to splits/ mergers of recognised political parties.**
- The Commission has the power to disqualify a candidate who has failed to lodge an account of his election expenses within the time and in the manner prescribed by law.

## WORLD FOOD INDIA 2023

### Why in News?

The second edition of the Mega food event 'World Food India 2023' was inaugurated by the Prime Minister at Bharat Mandapam, Pragati Maidan, New Delhi.

### About:

- The Prime Minister inaugurated the **second edition of the Mega food event 'World Food India 2023' at Bharat Mandapam, Pragati Maidan, in New Delhi.**

- It was **first launched in 2017 by the Ministry of Food Processing Industries** with the theme "Transforming the Food Economy."
- The event's **primary objective is to present India as the 'food basket of the world'** while celebrating 2023 as the International Year of Millets.
- **Prime Minister also extended Seed Capital Assistance to over one lakh members of Self Help Groups (SHGs)** to strengthen these groups.
- This initiative aimed to strengthen these groups, empowering local communities and fostering self-reliance.
- Over 200 chefs will participate, presenting traditional Indian cuisine, promising an exceptional culinary experience.
- This unique feature will showcase regional cuisines and India's rich culinary heritage.
- **Key growth pillars of FPI:**
  - Empowering small farmers through Farmer Produce Organizations (FPOs)
  - Organizing 2 lakh micro-enterprises to boost Small Scale Industries
  - Involving over 9 crore women through Self-Help Groups (SHGs)
- The event **also had a significant focus on celebrating 2023 as the International Year of Millets**, emphasizing the importance of these nutritious grains and promoting their cultivation and consumption on a global scale.
- It provides a platform for government bodies, industry professionals, farmers, entrepreneurs, and stakeholders to engage in discussions, form partnerships, and explore investment opportunities in the agri-food sector.
- It will feature pavilions highlighting the innovation and strength of India's food processing industry.
- The **event will host 48 sessions covering various aspects of the food processing industry**, with a focus on financial empowerment, quality assurance, and innovations in machinery and technology.
- Key Pillars of World Food India 2023:-
  - a) **Shree Anna (Millets): Leveraging India's Super Food for the World:**



Millets are ancient grains that have been part of India's rich heritage for millennia. They are super foods that provide high nutrition, gluten-free options, climate resilience, and eco-friendliness. The United Nations has declared 2023 as the International Year of Millets (IYM 2023) with the aim of increasing the production and consumption of millets worldwide.

b) **Exponential Food Processing: Positioning India as the Global Hub:**

India has a vision to become a global hub for food processing and create a competitive advantage for itself in the world food market. Financing Agri Food Value Chains, especially supporting MSMEs, is a key focus area.

c) **Strategic Segments: Unlocking Potentials for Growth:**

India is one of the world's largest producers and consumers of food products. India leads the world in the production of milk, bananas, mangoes, papayas, guavas, ginger, okra and buffalo meat. It ranks second in the production of rice, wheat, potatoes, garlic, cashew nuts.

d) **Creating an Inclusive and Efficient Ecosystem:** Removing barriers and establishing a coordinated framework for inclusive opportunities. In line with this, government has allowed 100% FDI under the automatic route in food processing industries in India

e) **Sustainable Development for Prosperity:** Embracing sustainable practices, renewable energy and eco-friendly agricultural and food processing methods for a more sustainable future.

## 2023 BRITISH ACADEMY BOOK PRIZE

### Why in News?

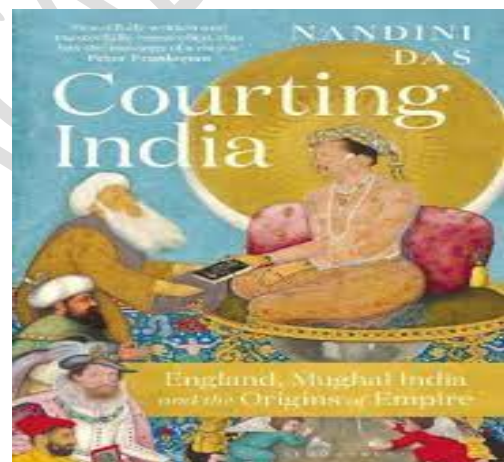
**Nandini Das**, an Indian-born author and Professor in the English faculty at the University of Oxford, won the **2023 British Academy Book Prize for Global Cultural Understanding**.

Her winning book is titled "***Courting India: England, Mughal India, and the Origins of Empire***," which explores the origins of the British Empire by focusing on the first English ambassador in India, Sir Thomas Roe, in the early 17th century.



## **About British Academy Book Prize:**

- British Academy Book Prize was **formerly known as the Nayef Al-Rodhan Prize.**
- It was **established in 2013.**
- It was **established to reward and celebrate the best works of non-fiction that demonstrate rigour and originality and have contributed to public understanding of other world cultures and their interactions.**
- The British Academy is the UK's national academy for humanities and social sciences.
- The eligible books come from the subjects that fall within those disciplines, from archaeology, history, and psychology to philosophy, languages, and cultural studies.
- Nandini Das who is a Professor in the English faculty at the University of Oxford, won the award for her book 'Courting India: England, Mughal India and the Origins of Empire'
- The **winner gets the £25,000 prize cash award, and each of the shortlisted works will receive £1,000 each.**



## **DEEPFAKES**

### **Why in News?**

A Deepfake video showing an Indian actress has sparked outrage and concern over the misuse of artificial intelligence (AI) to create realistic but fake videos, also known as deepfakes.

## **About Deepfakes:**

- **Deepfakes refer to realistic-looking, AI-generated content, typically images or videos that manipulate or replace the original content with new, often fabricated material.**
- **The term “Deepfake” is a combination of “deep learning” and “fake.”**
- Deepfakes are synthetic media that have been digitally manipulated to replace one person's likeness convincingly with that of another.
- Deepfakes are the **manipulation of facial appearance through deep generative methods.**
- While the act of creating fake content is not new, deepfakes leverage powerful techniques from machine learning and artificial intelligence to manipulate or generate visual and audio content that can more easily deceive.
- Deepfakes require a large amount of data, such as photos or videos, of the source and the target person, which are often collected from the internet or social media without their consent or knowledge.
- Deepfakes have garnered widespread attention for their potential use in creating child sexual abuse material, celebrity pornographic videos, revenge porn, fake news, hoaxes, bullying, and financial fraud.
- The spreading of disinformation and hate speech through deepfakes has a potential to undermine core functions and norms of democratic systems by interfering with people's ability to participate in decisions that affect them, determine collective agendas and express political will through informed decision-making.

## **How it works?**

- The technology involves modifying or creating images and videos using a machine learning technique called generative adversarial network (GAN).
- **The AI-driven software detects and learns the subjects’ movements and facial expressions from the source material and then duplicates these in another video or image.**
- To ensure that the deepfake created is as close to real as possible, creators use a large database of source images. This is why more deepfake videos are created of public figures, celebrities and politicians.

## **Challenges of Deepfakes:**

- spreading false information
- harassment and intimidation
- blackmail and ransom
- reputation tarnishing
- fabricating evidence
- Erosion of trust in democratic processes like elections
- Crime against women
- Rise in cybercrimes
- **India does not have specific laws or regulations that ban or regulate the use of deepfake technology.**
- Sections 67 and 67A of the Information Technology Act (2000) related to defamation and publishing explicit material is applied in cases of deepfakes.
- India's IT Rules, 2021 require that all content reported to be fake or produced using deep fake be taken down by intermediary platforms within 36 hours.
- Section 500 of the Indian Penal Code (1860) also provides punishment for defamation.

## **Solutions/Way forward:-**

- Understanding the life cycles of deepfakes
- Using watermark for attribution
- developing deepfakes developing technologies
- robust digital governance and legislation
- media literacy and awareness
- encouraging ethical and responsible use

## COMPOSITE WATER MANAGEMENT INDEX

### Why in News?

NITI Aayog is considering discontinuing the 'Composite Water Management Index' (CWMI) report, which was launched five years ago to assess water management in Indian states.

### **About Composite Water Management Index:**

- The Composite Water Management Index (CWMI) is launched by NITI Aayog to provide an annual snapshot of the water sector status and water management performance of the states and union territories (UTs) in India.
- Launched in June 2018 by Niti Aayog, the CWMI's debut edition spotlighted India's water challenges, rating states based on 28 parameters, utilizing data from 2015-16 and 2016-17.
- The second edition launched in August 2019 was for 2017-18.
- The report was a result of collaborative efforts between NITI Aayog and three key ministries: Water Resources, Drinking Water & Sanitation, and Rural Development.
- The Index comprises nine themes (each having an attached weight) with 28 different indicators.
- However, recent developments have raised queries regarding its future, casting doubts on its continuity.
- The latest edition of the report highlights that water scarcity is a national problem, with decreasing annual per capita water availability.
- While the third and fourth editions of the report have been delayed due to the unavailability of updated data during the COVID-19 pandemic, NITI Aayog has considered combining these editions with future rounds to extend the data coverage to district levels.



- The report aimed to support evidence-based policy decisions for water resource management and promote competitive and cooperative federalism among Indian states.

## BHARAT BRAND ATTA

### Why in News?

The Indian government has launched the sale of 'Bharat' brand Atta (wheat flour) with a maximum retail price (MRP) of Rs 27.50 per kilogram.

### About Bharat Atta:

- The Indian government has launched the sale of 'Bharat' brand Atta (wheat flour) with a maximum retail price (MRP) of Rs 27.50 per kilogram which is lower than the national average price of Rs 35.93 per kg.
- This initiative is part of the government's ongoing efforts to stabilize the prices of essential commodities and provide relief to consumers.
- The efforts to stabilize prices of essential commodities have **not only benefitted consumers but also supported farmers by ensuring a fair price for their produce.**
- The government has also been selling chana dal under the 'Bharat' brand.
- **'Bharat' Atta will be available through various outlets, including Kendriya Bhandar, National Agricultural Cooperative Marketing Federation of India Limited (NAFED), and National Cooperative Consumer Federation (NCCF), ensuring its accessibility to a broader consumer base.**
- **NAFED, founded in 1958, is a leading Indian cooperative organization for agricultural product procurement and marketing.**
- **NCCF is an apex organization for consumer cooperatives.** It functions under the Ministry of Consumer Affairs, Food and Public Distribution.





- Both NAFED and NCCF are registered under the Multi-State Co-operative Societies Act, of 2002.

## SUBANSIRI LOWER HEP

### Why in News?

The **Subansiri Lower Hydroelectric Project**, India's largest hydel project under construction, faced a setback when a **landslide blocked the only functional diversion tunnel and stopped the flow of water downstream of the dam into the Subansiri River**, a major tributary of the Brahmaputra.

### About Subansiri Lower Hydroelectric Project (SLHEP):

- The Subansiri Lower Hydroelectric Project is a **run-of-river scheme** that aims to generate **2,000 MW of power by harnessing the potential of the Subansiri River**, which flows along the border of Arunachal Pradesh and Assam.
- A run-of-river dam is one where the flow of water downstream of the dam equals the flow of water upstream of the dam.
- The **project is located near North Lakhimpur on the Arunachal Pradesh-Assam border.**
- It is **India's largest hydel project under construction.**
- The project is **being executed by the National Hydroelectric Power Corporation (NHPC).**
- The project includes the construction of a surface powerhouse and a 116m-high concrete gravity dam from the river bed level.
- The **dam is in Assam's Dhemaji district**, but the **powerhouse is in Arunachal Pradesh's Subansiri district.**



- Gravity dam is constructed from concrete or cement, it is designed to hold back water by primarily utilizing the weight of the material alone to resist the horizontal pressure of water pushing against it.
- The **project is expected to generate around 7,500 million units of power annually.**
- The project is **also expected to provide flood moderation, irrigation, and drinking water benefits to the downstream areas.**
- NHPC Limited **commenced construction work of Subansiri Lower Hydroelectric Project in January 2005.**
- However, due to agitations and protests by local stakeholders, the project construction work was stalled from December 2011 to October 2019. The project construction resumed from October 15, 2019, after the clearance by National Green Tribunal.

### **About Subansiri River:**

- The Subansiri River (Chayul Chu in Tibet) is a **trans-Himalayan river and a tributary of the Brahmaputra River.**
- It flows through Tibet's Lhuntse County in the Shannan Prefecture, and the Indian states of Arunachal Pradesh and Assam.
- The **Subansiri is approximately 518 kilometres long**, with a drainage basin 32,640 square kilometers.
- It is the **largest tributary of the Brahmaputra contributing 7.92% of the Brahmaputra's total flow.**
- The name is derived from a Sanskrit word svarna, meaning 'gold', so sometimes known as the "Gold River,"
- It **enters India near the town of Taksing and flows east and southeast through Miri Hills, then south to the Assam Valley at Dulangmukh in Dhemaji district, where it joins the Brahmaputra River at Jamurighat in Lakhimpur district.**
- It meets the Brahmaputra in the mysterious confluence of Majuli Island, the world's largest populated river island.



- Small **tributaries of the Subansiri include Rangandi, Dikrong and Kamle.**
- The Subansiri lends its name to two districts in Arunachal Pradesh: Upper Subansiri and Lower Subansiri.

## GEOGLYPH

### Why in News?

A **3,000-year-old circular geoglyph was recently discovered in Telangana's Medchal-Malkajgiri district.**

### About :

- This geoglyph, measuring **7.5 meters in diameter with a perfect circular shape and two triangles inside**, is the first of its kind found in Telangana.
- It has **been dated to the Iron Age, around 1000 BCE.**
- Features of the discovered geoglyph:
  - **Etched on a low-lying granitoid hillock**
  - Features a **perfect circular shape.**
  - A **30-centimeter-wide rim surrounds the circle.**
  - **Within the circle, two triangles are present**
- Experts suggested that it might have been a model for megalithic communities when planning their circular burial sites.
- **Geoglyphs can serve various purposes, including artistic, ceremonial, or navigational.**
- Geoglyph shows the artistic skills and etching techniques of the region's Iron Age inhabitants.





- Apart from the geoglyph, the team identified several grooves believed to be from the Neolithic period, dating back to 4000 BCE, located five meters away from the geoglyph.
- Furthermore, within a one-kilometer radius of the geoglyph, the team discovered three prehistoric rock shelters adorned with depictions of bulls, deer, porcupines, and human figures wearing masks.

### **About Geoglyph:**

- A **geoglyph** is a large design or motif (generally longer than 4 metres) produced on the ground by durable elements of the landscape, such as stones, stone fragments, gravel, or earth.
- A **positive geoglyph** is formed by the arrangement and alignment of materials on the ground in a manner akin to petroforms, while a **negative geoglyph** is formed by removing part of the natural ground surface to create differently coloured or textured ground in a manner akin to petroglyphs.
- There is **another variation of a geoglyph that involves seeding plants in a special design**. The design usually takes years to see since it depends on the plants growing. **This type of geoglyph is called an arbour glyph.**
- Geoglyphs are generally a type of land art, and sometimes rock art. A hill figure is created on a slope, so that it can be seen from a distance.
- Notable examples include the **Nazca Lines in Peru** and the **Uffington White Horse in England**.



## PAURADHWANI PROGRAMME

### Why in News?

The **Kerala State Literacy Mission (KSLM)** is launching the 'Pauradhwani' program in Ernakulam and eight other districts **to shape informed and independent citizens.**

### About Pauradhwani Programme:

- This program **aims to instil scientific aptitude, independent thinking, secularism, democratic spirit, constitutional values, and awareness about rights among the population.**
- Pauradhwani' has a **six-point motto**, emphasizing the
  - rights of marginalized sections
  - Democracy
  - Brotherhood
  - Building an egalitarian society
- The program **covers topics** such as the independence struggle, forest rights, rules for coastal areas, women-centric rules, and rights and laws governing children, health, and nutrition.

## NATIONAL COAL INDEX

### Why in News?

The **National Coal Index (NCI)** rose **3.83** points to 143.91 in September amid growing demand for coal.

This incline was influenced by **temporary rise of coal prices in global markets.**

### About National Coal Index:

- The NCI is a price index which **reflects the change in the price level of coal on a particular month relative to the fixed base year (FY 2017-2018).**
- It is **released every month by the Ministry of Coal.**
- The **NCI was introduced on June 4, 2020**, as a tool to monitor coal price fluctuations relative to a fixed base year FY 2017-18.



- The NCI serves as a crucial price indicator that combines coal prices from various sources, including notified prices, auction prices, and import prices.
- It compiles prices from all coal sales channels, including imports, and determines the revenue share per tonne using a defined formula.
- It is used to determine the premium, on a per-tonne basis or revenue share on a percentage basis based on a market-based mechanism.
- The **NCI consists of five sub-indices**—three for Non-Coking Coal and **two for Coking Coal**—allowing separate indices for each.
- The **Ministry of Coal does the commercial auction of coal mines** based on revenue share, utilizing the National Coal Index (NCI).



## UNDERWATER VOLCANO ERUPTION

### Why in News?

A **new island has recently emerged** within the vicinity of **Japan's Ogasawara island chain**, after the eruption of an underwater volcano in late October 2023.

The island, as of now, is **approximately 100 meters in diameter**.

It was **formed through phreatomagmatic eruptions**.



### About phreatomagmatic eruptions:

- Phreatomagmatic eruptions are **volcanic events triggered by the interaction of magma with water, typically seawater.**

- These interactions lead to explosive releases of ash and steam.
- The term “**phreatomagmatic**” combines “**phreatic,**” relating to water, and “**magmatic,**” referring to magma.
- These eruptions often occur underwater and are characterized by the explosive nature of the ash and steam release.

## AO AND SUMI NAGA COMMUNITIES

### Why in News?

Ao and Sümi Naga communities in Nagaland follow practices passed down through generations, **preserving seeds from successful harvests for successive cycles.**

### About:

- Households in Ao and Sümi Naga villages have granaries (called **jen in Ao** and **aleh in Sümi language**) to store seeds of Poaceae crops, particularly rice.
- Aeration tools made of bamboo are placed among the threshed rice in granaries, to ensure out-circulation of warm air that can impair the grains.
- **Traditionally agrarian,** the Ao and Sümi Naga **communities practise jhum or shifting cultivation.**
- The communities select seeds from initial harvests in new jhum fields to preserve for successive cycles, as these are recognised to exhibit optimal yield and resilience.
- Storage methods differ across crop varieties.
- Beans, sesame and mustard seeds are sun-dried, while maize is bundled in rows



above fireplaces or tied to kitchen roofs.

- Poaceae seeds, particularly rice, are stored in household granaries (called jen in Ao and aleh in Sümi).
- **Materials used for the baskets are bamboo, rattan or cane, whose culm or stems have low starch content**, as these are more resistant to pests.
- Residents also build community granaries that are strategically positioned on the outskirts of villages to serve as a dependable resource in case of emergencies, such as a fire.

### About AO Naga Community:

- The **Aos are a major Naga ethnic group** native to Mokokchung District of Nagaland in Northeast India.
- Their main territory is from Tsüla (Dikhu) Valley in the east to Tsürang (Disai) Valley in the west in Mokokchung District.
- The **Ao Nagas refer to themselves as Aoer**, which means "those who came" from across the Dikhu river.
- **They were the first Nagas to embrace Christianity**, and by virtue of this development, the Aos availed themselves of the Western education that came along with Christianity.
- The **total population of Ao Nagas in Nagaland is almost 227,000** according to the 2011 census.
- **Ao Nagas are found in the northern part of Nagaland**, mostly in the central Mokokchung District and **also a few are found in the adjacent Assam state.**
- The **Moatsü Festival (Sowing Festival)** is observed in the first week of May every year, after the sowing is done.
- The **Tsüngremong Festival (Harvest Festival)** is



the biggest festival of the community and is celebrated immediately after the harvest of the crop.

### **About Sumi Naga Community:**

- The Sūmis are a major Naga ethnic group inhabiting the territories of Zünheboto District, parts of Niuland District and Kiphire District in the Northeast Indian state of Nagaland.
- The Sūmi people are recognised as a Scheduled Tribe (STs) by India.
- The ancestral religion of the Sūmis was the worship of nature.
- With the arrival of Baptist missionaries in the 20th century, like other Naga ethnic groups, today, Sūmis are 99% Christians. Very few of them still practice animism.
- Sūmi Nagas mostly inhabit the central and southern regions of Nagaland.
- The Sūmis celebrate many festivals which have been carried down from generations.
- Tülüni (July 8) is a festival of great significance for the Sūmis. This festival is marked with feasts as the occasion occurs in the bountiful season of the year.
- Ahuna (14 November) is a traditional post-harvest festival of the Sūmis.



## **BEN GURION CANAL PROJECT**

### **Why in News?**

Israel's aspirations to gain full control over the Gaza Strip and eliminate Hamas may be linked to an ambitious economic opportunity—the **creation of the Ben Gurion Canal Project**.

Ben Gurion Canal Project, a **proposed 160-mile-long sea-level canal that would connect the Mediterranean Sea with the Gulf of Aqaba, bypassing the Suez Canal**.



## **About Ben Gurion Canal Project:**

- Originating in the 1960's and **named after Israel's founding father, David Ben-Gurion**, the Ben Gurion Canal Project remains an ambitious infrastructure proposal.
- **It envisions cutting a canal through the Negev Desert** to connect the Gulf of Aqaba with the Eastern Mediterranean.
- It extends to the Eastern Mediterranean coast, providing an alternative trade route.
- The **Gulf of Aqaba has a coastline shared by four countries: Egypt, Israel, Jordan, and Saudi Arabia.**
- **The canal would rival the Suez Canal**, which runs through Egypt and has had many disturbances in its history, such as the Israeli blockage through the Suez Canal and Straits of Tiran, closure of the Suez Canal (1956–1957), closure of the Suez Canal (1967–1975), and the 2021 Suez Canal obstruction
- It would be about 100 km longer than the 193-km Suez Canal.
- **Speculations suggest that Israel's desire to control Gaza and eliminate Hamas is linked to unlocking economic opportunities tied to the canal.**
- If realized, this project could reshape global trade dynamics by breaking Egypt's monopoly over the shortest trade route.



## **About Suez Canal:**

- The Suez Canal is **an artificial sea-level waterway in Egypt**, connecting the Mediterranean Sea to the Red Sea through the Isthmus of Suez and dividing Africa and Asia.
- The 193.30 km (120.11 mi) long canal is a **key trade route between Europe and Asia.**
- The **150-year-old canal was controlled by British and French interests in its initial years, but was nationalised in 1956 by Egypt.**



- The **Suez Canal** now is controlled by **Egypt**, which collects toll revenues from the vessels that use it.
- The canal enables India to access the markets of Europe, Africa, and the Middle East more easily and economically.
- India imports most of its oil and gas from the Gulf countries, and the canal facilitates the smooth flow of energy supplies to India.
- In March 2021, the mammoth cargo ship Ever Given got stuck in the canal, blocking passage for more than a week.



## MULTIPLE EARTHQUAKES IN ICELAND

### Why in News?

A state of emergency has been declared in Iceland, after a swarm of 800 earthquakes rocked the island country's southwestern Reykjanes peninsula in under 14 hours on Friday (November 10).

### About:

- Around 1,400 earthquakes were measured in the previous 24 hours, and over 24,000 have been recorded in the peninsula since late October.
- The most powerful of these quakes had a magnitude of 5.2, and hit about 40 km from Reykjavík, Iceland's capital, on Friday.
- **Iceland is located on the Mid-Atlantic Ridge**, technically the longest mountain range in the world, **but on the floor of the Atlantic Ocean.**



- The ridge separates the Eurasian and North American tectonic plates — making it a hotbed of seismic activity.
- On average, Iceland experiences around 26000 earthquakes a year according to Perlan, a Reykjavik-based natural history museum
- Deep under the Earth's surface, intense heat melts rocks to form magma, a thick flowing substance lighter than solid rock.
- This drives it upwards and most of it gets trapped in magma chambers deep underground.
- Over time, this viscous liquid cools and solidifies once again. However, a tiny fraction erupts through vents and fissures on the surface, causing volcanic eruptions.
- Now, the movement of magma close to Earth's surface exerts force on the surrounding rock, which often causes earthquake swarms.
- Now, the underground movement of magma does not necessarily lead to an eruption. But closer it gets to the surface, more likely an eruption is, and more frequent symptomatic earthquake swarms get.

## UNESCO'S CREATIVE CITY NETWORK

### Why in News?

Gwalior and Kozhikode from India are among the 55 new cities which have joined the UNESCO Creative Cities Network.

Gwalior in Madhya Pradesh has made it to the coveted list in the 'Music' category, Kozhikode in Kerala has earned the place in the 'Literature' category.



Other Indian cities in the UCCN include **Jaipur**: Crafts and Folk Arts (2015), **Varanasi**: Creative City of Music (2015), **Chennai**: Creative City of Music (2017), **Mumbai**: Film (2019), **Hyderabad**: Gastronomy (2019), and **Srinagar**: Crafts and Folk Art (2021).

## **KOZHIKODE – CITY OF LITERATURE:**

- **Kozhikode, situated in Kerala,** stands out as the **first Indian city to be designated as the ‘City of Literature’ by UNESCO,** marking a historic achievement.
- The city has a longstanding tradition of **hosting literary events,** including the Kerala Literature Festival, one of the largest literary gatherings in Asia, which showcases Kozhikode as a vital center for intellectual exchange and literary discussions.
- **Kozhikode carried the distinction of being home to over 500 libraries.**
- The city is also home to many renowned writers, including **S. K. Pottekkatt** (the most celebrated writer of the city), **Thikkodiyar** and **P.Valsala Sanjayan,** along with poets, scholars, and publishers who have contributed to the diversity and vibrancy of Malayalam literature and culture.



## **GWALIOR- CITY OF MUSIC:**

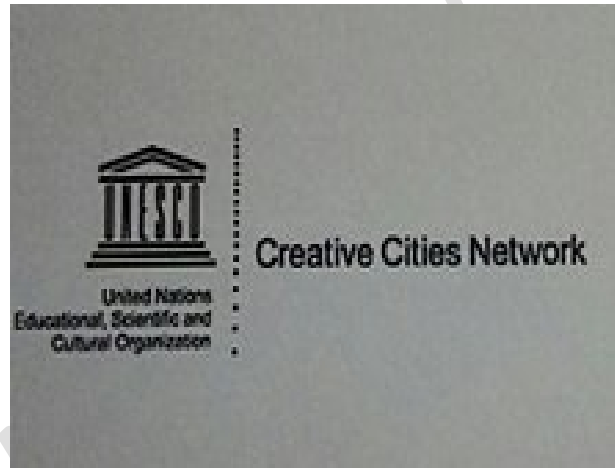
- **Gwalior, located in Madhya Pradesh,** has earned the distinction of being designated as the **‘City of Music’ by UNESCO,** following in the footsteps of Varanasi, which received this recognition in 2015.
- The city is widely regarded as the **birthplace of Tansen,** one of the greatest musicians and composers in Indian history, who was also one of the ‘Navratnas’ (nine jewels) in the court of Emperor Akbar.
- The city is the cradle of the **Gwalior Gharana,** the oldest and most influential school of Hindustani classical music, shaping the musical heritage of the region.
- The city hosts one of the biggest annual music festivals in India, the **Tansen Sangeet Samaroh,** which attracts thousands of music lovers and artists from



across the country and abroad underscoring the city's deep-rooted musical traditions.

## **About UCCN : UNESCO'S CREATIVE CITIES NETWORK**

- The UNESCO Creative Cities Network (UCCN) is a **flagship city programme of UNESCO launched in 2004** to promote cooperation among cities which have recognized culture and creativity as strategic drivers of sustainable urban development.
- The **network aims to foster mutual international cooperation with and between member cities committed to invest in creativity** as a driver for sustainable urban development, social inclusion and cultural vibrancy.
- The Network recognizes the following creative fields:
  - 1)The overall situation and activities within the Network is reported in the UCCN Membership Monitoring Reports, each for a 4-year period for a particular city.
  - 2)The Network recognizes the concept of creative tourism, defined as travel associated with creative experience and participation
- It is given in the following categories:
  1. Crafts and folk arts
  2. Media arts
  3. Film
  4. Design
  5. Gastronomy
  6. Literature and
  7. Music.





CITIES	CATEGORY
KOZHIKODE	CITY OF LITERATURE
GWALIOR	CITY OF MUSIC
SRINAGAR	CRAFTS AND FOLK ARTS
MUMBAI	FILM
HYDERABAD	GASTRONOMY
CHENNAI	CITY OF MUSIC
JAIPUR	CRAFTS AND FOLK ARTS
VARANASI	CITY OF MUSIC

## ATTENBOROUGH ECHIDNA

### Why in News?

An elusive echidna named '**Zaglossus attenboroughi**', feared extinct after disappearing for six decades, has been **rediscovered in a remote part of Indonesia**.

### About Attenborough Echidna:

- Zaglossus attenboroughi– **a kind of long-beaked echidna** named for famed British naturalist David Attenborough.
- It is **nocturnal and shy**.
- The long-beaked echidna is **not a social animal**, and it comes together with its own kind only once a year, in July, to mate.
- **It rolls up into a spiny ball when it feels threatened**, resembling the behaviour of a hedgehog (spiny mammal).
- It **weighs from 5 to 10 kilograms**.





- They have 5 claws on each foot, and adult males have a small non-venomous spur on the inside of each ankle.
- **Adults have no teeth, but the tongue is covered in teeth-like spikes.**
- It lives in the Cyclops Mountains, which are near the cities of Sentani and Jayapura in the Indonesian province of Papua.
- **IUCN : Critically Endangered (Last seen 1961)**

## AAINA PORTAL

### Why in News?

The Ministry of Housing and Urban Affairs (MoHUA) has launched the 'AAINA Dashboard for Cities' portal.

### About AAINA Portal:

- The 'AAINA Dashboard for Cities' portal [www.aaina.gov.in](http://www.aaina.gov.in) has been made live by Ministry of Housing and Urban Affairs (MoHUA) on 13th November, 2023.
- It is a portal where Urban Local Bodies (ULBs) across the country can participate in this pioneering initiative to voluntarily submit their key data on a regular basis, through a simple, easy-to-fill, data entry form on the portal.
- The **primary objectives of the AAINA Dashboard** are to help cities to
  - (i) see how they are faring vis-à-vis other cities,
  - (ii) inspire them by pointing to possibilities and areas of improvement and
  - (iii) providing opportunity to learn and engage with frontrunners.
- While not ranking the ULBs, the **AAINA dashboard would serve as a tool for comparing similarly placed cities and promoting peer learning among cities.**



Welcome To  
**aaína**  
Dashboard for Cities

- The **Dashboard will present the data submitted by the ULBs** on the basis of indicators across five broad pillars namely,
  - (i) Political & Administrative Structure,
  - (ii) Finance,
  - (iii) Planning,
  - (iv) Citizen Centric Governance and
  - (v) Delivery of Basic Services.
- The **ULBs will submit their data, including audited accounts, and self-reported performance metrics by logging in to the dashboard's portal.**
- ULBs would be free to update the information initially provided by them, anytime on the portal as per need.
- With active cooperation of all ULBs, the 'AANA Dashboard for Cities' aims to create a robust database of the key performance metrics of Urban Local Bodies, which could be accessed by all stakeholders, and subsequently would open for public view once it gets populated.
- The **Ministry through Digital India Corporation will provide handholding support to ULBs / States in the data submission process on a need basis.**

## INDIA EXEMPTED FROM CITES RST ON RED SANDERS

### Why in News?

India has been removed from the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Review of Significant Trade (RST) for Red Sanders.

### About:

- The Review of Significant Trade (RST) management system operates in those CITES cases where there is concern that trade may affect the viability of a particular species from a particular country.
- The CITES RST process enables disciplinary action in the form of trade suspensions directed at countries that do not meet their obligations.
- India has had a Red Sanders Review of Significant Trade (RST) process since 2004.

- It has now been exempted, allowing farmers in India to participate in the legitimate trade of Red Sanders.
- The exemption is attributed to the 2022 amendment to the Wildlife (Protection) Act, aligning with CITES provisions under the CITES National Legislation Programme (NLP).

### **About Red Sanders:**

- **Pterocarpus santalinus**, commonly known as red sanders, is a species of **Pterocarpus** endemic to the southern Eastern Ghats mountain range of South India.
- The **species is endemic to an isolated forest area in Andhra Pradesh.**
- This **tree is valued for the rich red colour of its wood,** and in recent years there has been a marked uptick in the use of red sandalwood as a component of incense, especially in the west.
- It is referred to as 'the pride of Eastern Ghats'.
- These trees have a slow growth rate, taking 25 to 40 years to mature, and they display remarkable resistance to droughts.
- The rich hue and therapeutic properties of Red Sanders are responsible for its high demand across Asia, particularly in China.
- Red Sanders is also used in cosmetics, medicinal products and high-end furniture/wood craft.
- Threats: Illicit felling for smuggling, forest fires, cattle grazing and other anthropogenic threats.
- IUCN Red List: earlier 'endangered' and now as 'near threatened' in 2018.
- CITES : Appendix II
- Wildlife (Protection) Act 1972: Schedule IV



## SATURN'S RING DISAPPEARING FROM EARTH

### Why in News?

Recently, scientists revealed that **in 2025, Saturn will align edge-on with Earth, rendering its splendid rings virtually invisible.**

Saturn's rings will not disappear permanently by 2025. Although they will become almost invisible from Earth during that time, it is a **regular occurrence due to the thinness of the rings.**

### About:

- One of the most spectacular sights in the Solar System is the majestic ringed planet Saturn, which is clearly visible in the evening sky through a telescope.
- **Saturn's rings are a vast system of icy particles, rocks, and dust that orbit the planet.**
- They were **formed from the debris of comets, asteroids, and moonlets that either collided with each other or were captured by Saturn's gravity.**
- **In 2025, however, Saturn's rings will seemingly disappear from view.**
- It isn't as if the planet will lose them forever.
- **The rings will just be invisible from Earth and will reappear soon thereafter.**
- The reason for this temporary disappearance has to do with Saturn's tilt and an optical illusion.
- Like Earth's axis of rotation, which is tilted by 23.5 degrees, **Saturn's axis of rotation has a 26.7 degree tilt** — its enormous ring system is also tilted to the plane of Saturn's orbit.
- As a result, when Saturn revolves around the Sun, it seems to nod up and down when viewed from Earth and the view of its rings also keeps changing.



- **Saturn takes 29.5 years to complete an orbit around the Sun and every 13 to 15 years, the edge of its rings aligns directly with Earth.**
- **As the rings are very thin — in most places, just tens of metres thick — at this position, “they reflect very little light, and are very difficult to see, making them essentially invisible,”**
- That’s what’s going to happen in March 2025 — Saturn’s rings will not be visible from Earth because they will be perfectly aligned with our line of sight. **The rings will gradually return to view as the planet will continue to revolve around the Sun.**
- This happens regularly. The last time was in 2009 and the rings gradually became visible again, over the course of a few months.

## PM GARIB KALYAN ANNA YOJANA

### Why in News?

Prime Minister has announced that Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) will be extended for another five years i.e till December,2028.

### About PM GARIB KALYAN ANNA YOJANA:

- Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY; Prime Minister's Food Security Scheme for the Poor) **is a food security welfare scheme announced by the Government of India on March 26 2020, during the COVID-19 pandemic in India.**
- The program is operated by the Department of Food and Public Distribution under the **Ministry of Consumer Affairs, Food and Public Distribution.**
- **Nodal ministry : Ministry of Finance.**





- The scheme aims to feed the poorest citizens of India by providing grain through the Public Distribution System, to all the priority households (ration card holders and those identified by the Antyodaya Anna Yojana scheme).
- PMGKAY provides 5 kg of rice or wheat (according to regional dietary preferences) per person and 1 kg of dal to each family holding a ration card.
- The scale of this welfare scheme makes it the largest food security program in the world.
- Initially set to expire in December 2022, the scheme was extended till December 2023 and **now, it has been extended for an additional five years**.
- Since its inception, the government has allocated 1,118 lakh metric tonnes of foodgrains from its central procurement pool at a cost of Rs 3.9 lakh crore.

## SEA BUCKTHORN

### Why in News?

Ladakh's Sea Buckthorn has been granted the **Geographical Indication (GI)** tag.

### About Sea Buckthorn:

- Sea Buckthorn (Hippophae L) is a **wonder plant of Ladakh** and named '**Leh Berry**' produces small orange or yellow coloured berries that are sour in taste but rich in vitamins, especially Vitamin C.
- **In India, it is found in the Himalayan region, generally in dry areas such as the cold deserts of Ladakh and Spiti.**
- Ladakh Sea Buckthorn is a vital crop in Union Territory Ladakh, with **90% of its production originating from the region.**
- It is naturally distributed over 11,500 hectares in the Ladakh region.



- It is also popularly known as 'Wonder Plant', “Ladakh Gold”, “Golden Bush” or “Gold Mine”.
- It is a **deciduous shrub in the family Elaeagnaceae.**
- The Sea Buckthorn Plantation has many Ecological, Medicinal and Economical benefits.
- **Every part of the plant—berries, leaves, twigs, roots, and thorns—are useful for medicine, food, fuel, and fencing.**
- It is a **soil-binding plant** which prevents soil-erosion, checks siltation in rivers and helps preserve floral biodiversity.
- The shrub can withstand extreme temperatures from minus 43 degrees Celsius to 40 degrees Celsius and is considered drought-resistant.
- These two characteristics make the shrub an ideal plant species to establish in cold deserts.
- It’s also a vital food source for many birds and provides nutritious food for animals like sheep, goats, donkeys, cattle, and camels in the cold desert regions.
- Sea Buckthorn berries have a unique characteristic of remaining intact on the shrub throughout the winter months despite of the subzero temperature.
- The leaves serve as protein-rich fodder for cold desert animals like sheep, goats, donkeys, cattle, and double-hump camels.
- The thorny and bushy growth of the shrub provides a protective shelter for flora and fauna thereby maintaining the fragile ecosystem of the cold arid region.
- Sea Buckthorn has been judiciously used by people living in the cold deserts.
- Due to the scarcity of resources, Sea Buckthorn has been used traditionally for a variety of purposes.
- **In Himachal Pradesh, it is locally called Himalayan chharma.**
- It is used in making juices, jams, nutritional capsules among others.
- It is also used in the manufacturing of cosmetics and anti-ageing products.

## GOVERNOR’S POWER TO WITHHOLD ASSENT

### Why in News?

The Supreme Court has recently expressed displeasure on delays for action on Bills presented for assent to Governors of Tamil Nadu, Telangana, Punjab and Kerala.

Recently, the Supreme Court (SC) of India has stated when the Governor chooses to withhold assent to a Bill, it is mandatory for them to follow a specific course of action outlined in Article 200 of the Constitution.

### **Governor's Power with respect to Bills:**

**Article 200 of the Constitution** lays down that **when a Bill, passed by a State Legislature, is presented to the Governor for their assent, they have four alternatives:-**

- i. May give assent to the Bill;
- ii. May withhold assent to the Bill, that is, reject the Bill in which case the Bill fails to become law;
- iii. May return the Bill (if it is not a Money Bill) for reconsideration of the State Legislature; or
- iv. May reserve the Bill for the consideration of the President.

It also stipulates that the Governor shall reserve for the President's consideration any Bill that, in the Governor's opinion, would diminish the powers of the High Court.

However, **Governors have been accused of misusing their powers and unfairly withholding their assent to Bills, leading to friction with State governments.**

**Article 163 of the Constitution** says the Governor will normally be aided and advised by the Council of Ministers except in those functions which require his discretion.

### **Challenges:**

- **OVERRULING MINISTERIAL ADVICE:** The return of any Bill to the State Legislature for reconsideration is also to be done based on ministerial advice.
- **NO CONSTITUTIONAL PROVISIONS IN CASE OF DISAGREEMENT.**
- **UNDERMINES THE DEMOCRATIC PROCESS** as the Governors are not elected officials.
- **UNDERMINES FEDERAL NATURE** of Indian Political System.
- **LACK OF ACCOUNTABILITY:** When the Governor withholds assent, he/she does not have to provide any reason for the decision.
- **DELAY IN DECISION-MAKING AND IMPLEMENTATION OF POLICIES**
- **ABUSE OF POWER:** The grant of assent is a routine function of the titular head of state, and the exceptional power to withhold it is not meant to be exercised unreasonably.

## **Solutions:**

- **Ensuring Accountability for the Decision:** The Governor must provide a valid reason for such refusal. They cannot act arbitrarily.
- **Maintaining a Neutral Constitutional Stand:** The Governor is supposed to be an independent, non-partisan person.
- **Careful Use of Discretionary Powers:** Governors should use the pocket veto judiciously.
- **Respecting the Federal Nature of Indian Polity:** Federalism is a basic feature of our Constitution
- **Committee Recommendations:** The recommendations of Sarkaria Commission, Punchhi Commission and NCRWC must be implemented.
- **Authoritative Supreme court decision-** The SC decision must address the grey areas of Art 200 which the Governors misuse for with holding the Bill. It must also prescribe a time limit for which the governor can with hold the Bill.

## **E-PRIME LAYER**

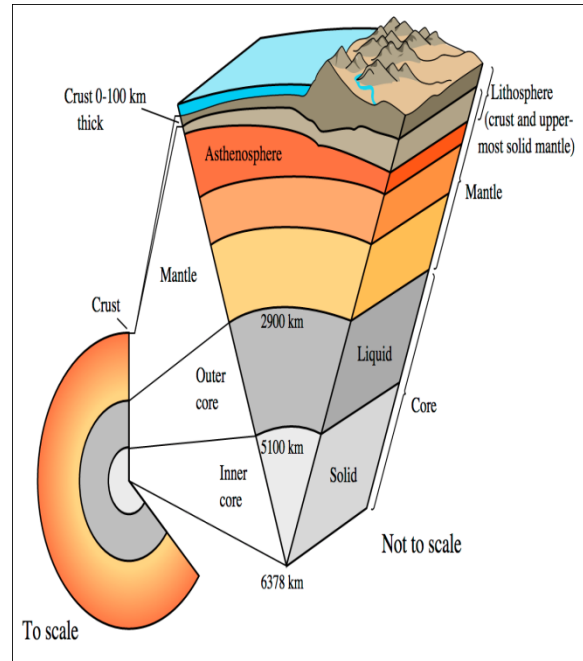
### **Why in News?**

An **international team of researchers**, including scientists from Arizona State University (ASU), **has uncovered a mysterious layer, known as the E prime layer, at the outermost part of Earth's core.**

### **About:**

- **Earth is composed of four distinct layers, based on their density.**
- The outermost layer is called crust, then comes the mantle, followed by the outer core and finally, the inner core.
- **The E-Prime Layer is a distinct layer at the outermost part of Earth's core,** formed by surface water penetrating deep into the planet over billions of years.
- **The transformed layer in the core holds significant implications for the interconnected geochemical processes** linking surface water cycles with the deep metallic core.
- **Previous Belief:** Previously it was believed that a minimal material exchange between the core and mantle,

- This discovery has significant implications for understanding Earth's internal processes, magnetic field, heat generation, and plate tectonics.
- This latest research suggests that **tectonic plates carrying surface water have transported it deep into the Earth over billions of years.**
- **Upon reaching the core-mantle boundary about 1,800 miles below the surface, this water initiates significant chemical changes, influencing the core's structure.**
- Scientists have observed that **subducted water reacts chemically with core materials under high pressure.**
- **This layer is characterized by a hydrogen-rich, silicon-depleted composition,** influenced by a chemical reaction with the core's silicon at the core-mantle boundary.
- **Silica crystals generated by this process ascend and blend into the mantle,** impacting the overall composition.
- These modifications in the liquid metallic layer could potentially result in reduced density and altered seismic characteristics, aligning with anomalies detected by seismologists.
- The Earth's outer core's composition, predominantly containing iron and nickel, plays a pivotal role in generating Earth's magnetic field. This field acts as a shield, safeguarding the planet from solar winds and radiation.



## ICE STUPAS

### Why in News?

**Ladakh is facing a water crisis,** flash flooding, decrease in meadows (pasture for pashmina goats).



Despite these challenges, there is hope in the form of “ice stupas,” a solution devised by engineer Sonam Wangchuk.

### **About Ice Stupas:**

- Ice stupa is a form of glacier grafting technique that creates artificial glaciers.
- It is used for storing winter water (which otherwise would go unused) in the form of conical shaped ice heaps.
- During summer, when water is scarce, the ice melts to increase water supply for crops.
- Channelling and freezing water for irrigation has existed for hundreds of years.
- An 18-metre stupa can hold roughly 1.5 to 2 million litres of water.
- It was adopted, popularised and scaled up by Sonam Wangchuk in Ladakh, India as a piece of art and reform.
- Sonam Wangchuk is the founder-director of the NGO Students’ Educational and Cultural Movement of Ladakh (SECMOL).
- **Launched in October 2013**, the test project started in January 2014 under the project name The Ice Stupa Project.
- On 15 November 2016, **Sonam Wangchuk was awarded the Rolex Awards for Enterprise for his work on ice stupa.**



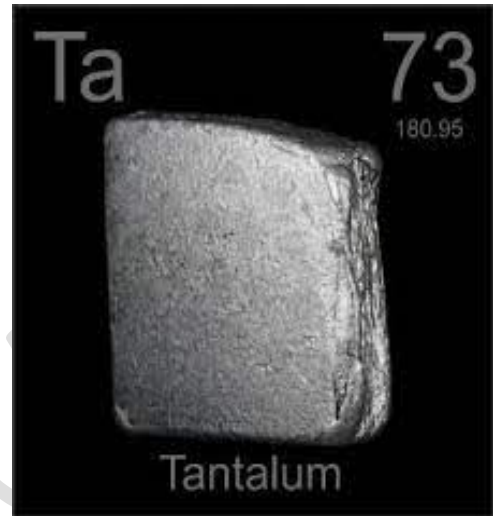
## **TANTALUM**

### **Why in News?**

**Tantalum (Ta)**, a rare metal with remarkable properties, **has been discovered in the sands of the Sutlej River in Punjab** by a team of researchers from the Indian Institute of Technology (IIT), Ropar.

### **About Tantalum:**

- Tantalum is a **chemical element**; it has **symbol Ta** and **atomic number 73**.
- Tantalum is a **very hard, ductile, lustrous, blue-gray transition metal** that is **highly corrosion-resistant**.
- It is **part of the refractory metals group**, which are widely used as components of strong high-melting-point alloys.
- **It is a group 5 element**, along with vanadium and niobium, and it always occurs in geologic sources together with the chemically similar niobium, mainly in the mineral groups tantalite, columbite and coltan.
- It was **first discovered in 1802 by Swedish chemist Anders Gustaf Ekenberg**.
- It is **grey, heavy, and highly corrosion-resistant, forming an oxide layer when exposed to air**.
- Extremely resistant to chemical attack at temperatures below 150°C, it is affected only by hydrofluoric acid, acidic solutions with fluoride ions, and free sulphur trioxide.
- Tantalum **also has an extremely high melting point**.
- **Uses of Tantalum:**
  - **Widely used in electronics for making capacitors** that store electricity efficiently in small sizes.
  - Capacitors made from tantalum are vital for storing more electricity in smaller sizes, ideal for portable electronic devices.
  - **Serves as a cheaper alternative to platinum** due to its high melting point.
  - **Utilized in manufacturing parts for chemical plants, nuclear facilities, aircraft, and missiles.**
  - **Biocompatible, making it suitable for surgical tools** and implants like artificial joints.



- Tantalum carbide (TaC) composite, known for its extreme hardness, is used in high-speed machine tools.

## MADIGA COMMUNITY

### Why in News?

Prime Minister has taken the initiative to establish a committee to address the longstanding request for the **sub-categorization of the Madiga community within the Scheduled Castes**.

### About Madiga Community:

- **Madiga is a Telugu caste, mainly living in the states of Andhra Pradesh, Telangana and Karnataka, with a small minority in Tamil Nadu.**
- **Madigas are listed in the scheduled castes, traditionally they were leather workers.**
- **Historically, Madigas have been associated with occupations such as tannery, leatherwork, and small handicrafts.**
- **Over time, many members of the Madiga community have transitioned to become agricultural laborers, reflecting changes in their economic activities.**
- **The Madiga community, constituting about 50% of Telangana's SC population.**
- **It has long advocated for equitable distribution of reservation benefits, asserting that the benefits have predominantly favoured the Mala community.**
- **This initiative seeks to rectify historical disparities by promoting an equitable distribution of reservation benefits among all sub-castes within the SC category.**
- **According to the 2011 census, the total Madiga population is around 67,02,609 persons.**



## KOLKALI

### Why in News?

Kolkali is presented by the mothers' association of the Thrissur Archdiocese as a tribute to the arrival of St. Thomas in India.

### About Kolkali:

- Kolkali is a **folk art performed in Malabar region of Kerala, India.**
- It is **often performed in a group, with participants wielding sticks and moving rhythmically in a circle, striking the sticks of the adjacent dancers in a coordinated manner.**
- The dance performers move in a circle, **striking small sticks and keeping rhythm with special steps.**
- The **circle expands and contracts as the dance progress.** The accompanying music gradually rises in pitch and the dance reaches its climax.
- The **dance is known for its vibrant and energetic movements, accompanied by rhythmic beats.**
- Kolkali is now a popular event in Kerala School Kalolsavam, which is considered as the biggest cultural event of Asia.
- There are **two styles of Kolkali: the actual Kolkali and Thekkan Koladi.**
- The actual Kolkali consists of Thacholikali, Rajasooyam etc.
- The actual kolkali is almost at verge of extinction and Thekkan Koladi is still alive as it is added in state kololsavams.



## KAMBALA

### Why in News?



- More recently, the **Kambala Samithi** hosts **weekly events from the end of November** till the 1st half of April across Dakshina Kannada and Udupi districts in Karnataka.
- **Supreme Court ruled to ban Jallikattu, Kambala and bullock cart racing in 2014.**
- Kambala has in the past been banned by the Supreme Court, but the **Karnataka government**, keeping its popularity in mind, **amended legislation to allow the races to go on.**
- **Bengaluru hold its first Kambala race**, with 159 pairs of buffaloes and their jockeys racing through the specially made slush tracks in the city's Palace Grounds

### **About Kambala:**

- Kambala is an **annual buffalo race held in the southwestern Indian state of Karnataka.**
- Traditionally, it is sponsored by local Tuluva landlords and households in the coastal districts of Dakshina Kannada and Udupi of Karnataka and Kasaragod of Kerala, a region collectively known as Tulu Nadu.
- The **Kambala season generally starts in November and lasts until March.**
- It will be **organised in the slushy paddy fields, in the days after the harvest from November to March.**
- Kambala is **typically conducted in four categories:**
  - **Negilu (Plough):** Entry-level buffalo pairs participate using lighter ploughs.
  - **Hagga (Rope):** Jockeys race buffaloes with only a rope tied to both animals.
  - **Adda Halage:** Participants stand on a horizontal plank dragged by buffaloes.





- **Kane Halage:** A wooden plank tied to buffaloes, with water gushing out through holes as it is dragged. The winner is determined by the height of the splashing water.
- **Animal activists criticize the sport and argue that the Kambala involves acts of cruelty on animals** which are not physiologically suited for racing and they run in the race due to fear of being beaten.
- The **Supreme Court had banned jallikattu, bullock-cart races, and kambala events in its judgement on May 7, 2014.**
- **However, the Prevention of Cruelty to Animals (Karnataka Amendment) Ordinance, 2017 approved the organising of kambala event, provided steps are taken to avoid cruelty to the participating bulls.**

## NATIONAL MILK DAY

### Why in News?

The **Department of Animal Husbandry and Dairying** celebrated "**National Milk Day 2023**" on **November 26** in **Guwahati**.

This special day **honours the birth anniversary of Dr. Verghese Kurien, the "Father of the White Revolution in India,"** highlighting the achievement and importance of the dairy sector in our country.

### About Dr. Verghese Kurien:

- **Verghese Kurien** (26 November 1921 – 9 September 2012) is **known as the "Father of the White Revolution" in India.**
- He was a **social entrepreneur whose "billion-litre idea", Operation Flood, made dairy farming India's largest self-sustaining industry** and the largest rural employment sector providing a third of all rural income.



- **India became the largest milk producer in 1998 and surpassed the US** because of Dr Kurien's contribution.
- **It made India the world's largest milk producer**, doubled the milk available for each person, and increased milk output four-fold in 30 years.
- **He pioneered the Anand model of dairy cooperatives** and replicated it nationwide, based on various "top-down" and "bottom-up" approaches.
- He also **played a key role in the establishment and success of Amul Brand**.
- He also **helped manage the Delhi Milk Scheme and corrected the prices**. He also helped India become self-sufficient in edible oils.
- He was **honoured with several awards**, including the Ramon Magsaysay Award (1963), Krishi Ratna (1986) and World Food Prize (1989).
- He is **also the recipient of India's highest civilian awards- Padma Shri (1965), Padma Bhushan (1966) and Padma Vibhushan (1999).**

### **About Operation Flood:**

- **White Revolution or Operation Flood, launched on 13 January 1970, was the world's largest dairy development program and a landmark project of India's National Dairy Development Board (NDDB).**
- **It transformed India from a milk-deficient nation into the world's largest milk producer**, surpassing the United States of America in 1998 with about 22.29 percent of global output in 2018.
- Within 30 years, it doubled the milk available per person in India and made dairy farming India's largest self-sustainable rural employment generator.
- **The program was launched to help farmers direct their own development, and to give them control of the resources they create.**
- Dr Verghese Kurien, the chairman and founder of Amul, was named the Chairman of NDDB by Prime Minister Lal Bahadur Shastri.



- The making of skim milk powder out of buffalo milk, termed the Anand Pattern Experiment at Amul, was also instrumental to the program's success; the man who made this possible was Harichand Megha Dalaya, alongside Kurien.
- It allowed Amul to compete successfully with cow milk-based suppliers such as Nestle.

## NUGU WILDLIFE SANCTUARY

### Why in News?

The National Tiger Conservation Authority (NTCA) recommends declaring the Nugu Wildlife Sanctuary, adjoining Bandipur Tiger Reserve, as a core critical tiger habitat.

### About Nugu Wildlife Sanctuary:

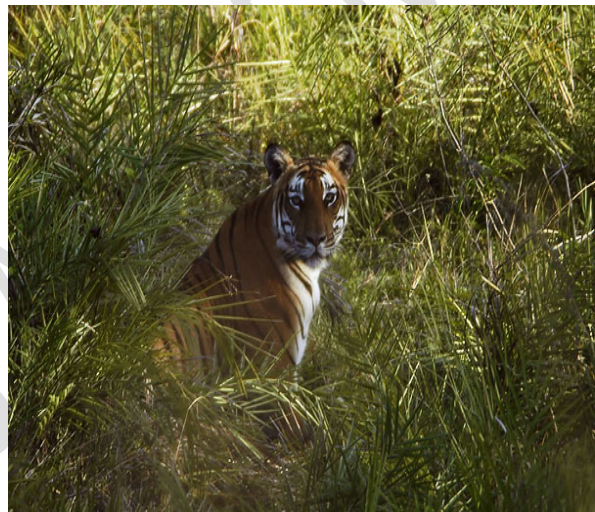
- Nugu Wildlife Sanctuary is situated north of Bandipur National Park in Mysore District of Karnataka, India.
- The northern part of Nugu WLS is occupied by the Nugu Reservoir.
- It was declared a Wildlife Sanctuary in 1974 and it was added to Nilgiri Biosphere Reserve in 2003-2004.
- This wildlife sanctuary serves as a great tourist attraction, especially in the months of October to April.
- The wildlife sanctuary is also surrounded by Nugu Dam, two seasonal lakes, and three water tanks to provide water resources in the sanctuary.
- The backwaters of Nugu dam forms the part of the Nugu Wildlife Sanctuary and lies on the western side of the sanctuary.
- The area receives rainfall from both southwest and northeast monsoons. The average amount of rainfall received in this area is 1000 mm.
- Most of the vegetation in the forests is dry, deciduous and interspersed with patches of plantations.



- It serves as a home to many species of flora and fauna such as Dipterocarpus indicus, Calophyllum tomentosum, elephants, wild pigs, spotted deer, leopards, jungle cats, etc.
- **Nugu Wildlife Sanctuary has been declared as an eco-sensitive zone by the Ministry of Environment, Forests and Climate Change**, because of the number of commercial tourism ventures in the sanctuary.

### **About Bandipur National Park:**

- Bandipur National Park is a national park covering 868.63 km<sup>2</sup> in Chamarajnagar district in the Indian state of Karnataka.
- It **was established as a tiger reserve under Project Tiger in 1973.**
- It is **part of the Nilgiri Biosphere Reserve since 1986.**
- It has a variety of biomes including dry deciduous forests, moist deciduous forests and shrublands.
- The **park is flanked by the Kabini river in the north and the Moyar in the south.**
- The **Nugu river runs through the park.**
- The **highest point in the park is on a hill called Himavad Gopalaswamy Betta.**
- Bandipur Tiger Reserve is surrounded by Mudumalai Tiger Reserve (Tamil Nadu) in the South, Wayanad Wildlife Sanctuary (Kerala) in the Southwest, and Kabini Reservoir in the North West, separating it from Nagarahole Tiger Reserve
- **Bandipur has typical tropical climate with distinct wet and dry seasons.**
- Bandipur **supports a wide range of timber trees** including: teak, rosewood, Indian-laurel, Indian kino tree, giant clumping bamboo, clumping bamboo and Grewia tiliaefolia.
- Bandipur National Park harbours the Asian elephant, gaur, Bengal tiger, sloth bear, four-horned antelope, golden jackal and dhole.
- The commonly seen mammals along the public access roads in the park include chital, gray langur, Indian giant squirrel and Indian elephant.



- Blue Peafowl are among the most commonly seen birds in Bandipur along with gray junglefowl, crows and drongos. Bandipur is **home to over 200 species of birds**

CLASSIC IAS ACADEMY



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