

## DAILY CURRENT AFFAIRS (DCA)

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## CAVUM CLOUD

### Context

- Recently, **NASA's Terra satellite** captured a cluster of **cavum clouds** over the Gulf of Mexico off Florida's west coast.

### About the Cavum Clouds



- These clouds appear as if a large circle or ellipse has been neatly cut from the clouds, leaving feathery wisps in the middle of the hole.
  - They are also known as **hole-punch clouds** or **fallstreak holes**.
- These are a testament to the intricate and dynamic processes that occur in our atmosphere.

### Formation:

- Cavum clouds are formed when **aeroplanes fly through banks of altocumulus clouds**, mid-level clouds that contain supercooled water droplets.
- As air moves around the plane, a process called **adiabatic expansion** can make the droplets freeze into ice crystals.
- The ice crystals eventually grow heavy and fall out of the sky, leaving a hole in the cloud layer.
- The **falling ice crystals** are visible in the centre of the holes as **wispy trails of precipitation that never reach the ground** – features called **virga**.

### Clouds

- They are visible accumulations of tiny water droplets or ice crystals in the Earth's atmosphere. They differ greatly in **shape, altitude, and colour**.

### Types:

- Cirrus Clouds:** These are wispy, curly, or stringy clouds found high in the atmosphere, typically higher than 6,000 metres (20,000 feet).
  - They are usually made of ice crystals and usually signal clear, fair weather.

- Stratus Clouds:** These are horizontal and stratified, or layered. They can blanket the entire sky in a single pattern and usually occur close to the Earth.
  - They often form at the boundary of a warm front, where warm, moist air is forced up over cold air.
- Cumulus Clouds:** These are large and lumpy clouds. They can stretch vertically into the atmosphere up to 12,000 metres (39,000 feet) high.
  - They are created by strong updrafts of warm, moist air.
- Nimbostratus Clouds:** These are low and middle dark grey clouds with precipitation falling from them.
- Stratocumulus Clouds:** These are low clouds with irregular masses of clouds, rolling or puffy in appearance, sometimes with space between the clouds.
- Cumulonimbus Clouds:** These are large clouds with dark bases and tall billowing towers.
  - They can have sharp well-defined edges or an anvil shape at the top. Precipitation can obscure the base of the clouds.

## SUPREME COURT OF INDIA ON LEGISLATIVE PRIVILEGES

### Context

- Recently, the Supreme Court of India ruled that MPs or MLAs **cannot claim any immunity** under **Articles 105 (2) and 194 (2)** for acts of bribery to cast a vote or make a speech in the House.
- Verdict**
- A seven-judge Constitution Bench headed by Chief Justice of India (CJI) **unanimously overruled its Judgement in P.V Narasimha Rao v. State (1998)**.

### P.V Narasimha Rao v. State (1998)

- A five-member Constitution Bench had held that **parliamentarians and legislators enjoyed immunity** for their actions on the floor of the House, **even if they had taken bribes** to vote in a particular manner.
- It **allowed legislators to claim immunity** from prosecution in bribery cases under the **Prevention of Corruption Act, 1988**.

## Supreme Court on Bribery and Legislative Privileges

- The Supreme Court of India ruled that MPs and (MLAs cannot claim any immunity from prosecution for accepting bribes to cast a vote or make a speech in the House.

**BREAKING**

“

**Corruption and bribery of members of the legislature erode the foundation of Indian parliamentary democracy. It is disruptive of the aspirations and deliberative ideals of the Constitution and creates a polity which deprives citizens of a responsible, responsive, and representative democracy.**

**SUPREME COURT**

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- The court stated that the object of parliamentary privileges is not to set apart the members of the legislature as persons who wield higher privileges in terms of immunity from the application of the general criminal law of the land.
  - It has significant implications for the exercise of parliamentary privileges and the scope of judicial review.

### Parliamentary and Legislative Immunity in India

- It is a system in which **members of the legislature are granted protection** from legal prosecution for actions taken or statements made in the course of their official duties.
- In India**, this concept is enshrined in the Constitution and plays a crucial role in the functioning of the country's parliamentary democracy.

### Constitutional Provisions:

- Article 105 (2)** of the Indian Constitution confers on MPs immunity from prosecution in respect of anything said or any vote given in Parliament or on any parliamentary committee.
- Similarly, **Article 194 (2)** grants protection to MLAs in the context of state legislatures.
- These provisions are designed to allow legislators to express their views openly without concern for legal consequences.
- They ensure uninterrupted representation and preserve the balance of power in a democracy.

### Implications of the Judgement

- The **recent SC judgement** has significant implications for the **exercise of parliamentary**

**privileges** in India. It has wide-ranging implications for the functioning of the Indian parliamentary system.

- It underscores the principle that **no one is above the law**, not even lawmakers, and sends a **strong message against corruption and bribery** in the legislative process.
- It **opens the doors for law enforcement agencies** to initiate prosecution against legislators in bribery cases under the **Prevention of Corruption Act, 1988**.
  - It could potentially lead to **greater accountability and transparency** in the legislative process.

### Conclusion

- Parliamentary immunity is a **vital aspect of India's parliamentary democracy**, allowing legislators to perform their duties without fear of legal repercussions.
- However, recent Supreme Court judgements have clarified that this **immunity does not extend to acts of bribery**, reinforcing the **principle of probity in public life** and the **rule of law**.

## INDIA-EFTA FTA

### In Context

- The **European Free Trade Association (EFTA)** has agreed to invest **\$100 billion in India over 15 years**.
  - The FTA with India is likely to be announced within a month.

### About FTA

- The **sectors** in which EFTA will be investing are **pharma, food processing, engineering and chemical**.
- The proposed deal will see **India eliminate its duty for a wide range of products** including gold, machinery, and pharmaceuticals, from EFTA countries.
- The investment commitment that has been agreed will largely come from **provident funds (PFs) in EFTA countries**.

### About European Free Trade Association (EFTA)

- The European Free Trade Association (EFTA) is the **intergovernmental organisation of Iceland, Liechtenstein, Norway and Switzerland**.
- It was set up in **1960** by its then seven Member States for the promotion of **free trade and economic integration between its members**.
- Trade with India: India's exports to the EFTA bloc in 2023** were at \$1.87 billion, with items such

as chemicals, pharmaceuticals, apparel and pearls, precious & semi-precious stones.

- ◆ It imported goods worth **\$20.45 billion** from the EFTA countries in 2023 with inflows of pearls, precious or semi-precious stones, precious metals, and coins valued at \$16.7 billion.

### Significance

- **Diversification of Imports:** India primarily depends on Chinese imports in strategically important sectors such as chemical and pharma sectors to fulfill domestic demand and fulfill export orders.
  - ◆ It imported \$3.4 billion worth of medical and bulk drugs worth nearly \$7 billion.
  - ◆ The deal will help **India diversify its pharma and chemical imports away from China**, dependence on which has been a long standing concern.
- **Better Standardised Devices:** As Switzerland chiefly exports better standard pharma and medical devices to India, duty elimination under the deal could help EFTA countries compete with Chinese products, hence **helping India diversify away from cheap quality Chinese products**.
- **Investment and Employment Generation:** This is the first FTA for India where it has been able to get a **commitment on investment and employment** from the partner nations generating an estimated 1 million jobs.

### Concerns

- **Trade Deficit with Switzerland:** During the last financial year, India's imports from Switzerland stood at \$15.79 billion, in stark contrast to its exports of \$1.34 billion, leading to a **substantial trade deficit of \$14.45 billion**.
  - ◆ The proposed deal will see India eliminate its duty for a wide range of products from EFTA countries which is likely to increase trade deficit.
- **Tariffs on Agricultural Produce:** India faces difficulties in exporting agricultural produce to Switzerland due to a complex web of tariffs, quality standards, and approval requirements and that EFTA has shown no inclination to make agriculture tariffs zero on most basic agricultural produce.
- **Elimination of Import Duties in Switzerland:** It's decision to eliminate import duties on all industrial goods for all countries, effective from January 1, 2024, diminishes the benefits India could gain from the FTA.

- **Divergent Regulatory Standards:** Harmonizing standards related to product quality, safety, and environmental regulations is crucial for smooth trade, and differences may lead to additional compliance costs for businesses.
- **Intellectual Property Rights (IPR):** Both parties need to agree on the standards and enforcement mechanisms for patents, copyrights, trademarks, and other intellectual property issues.

### Way Ahead

- The potential benefits of FTA between India and EFTA states are significant.
- The agreement will foster a strong partnership and increase trade between trusted democratic partners that share values such as promoting sustainable development and gender equality.

## INDIGENOUS PROTOTYPE FAST BREEDER REACTOR (PFBR)

### In Context

- Prime Minister witnessed the initiation of the core loading of **India's indigenous 500 Mwe Prototype Fast Breeder Reactor (PFBR)** at the **Madras Atomic Power Station, Kalpakkam**.
  - ◆ This marked India's entry into the **vital second stage** of the country's **three-stage nuclear programme**.

### What is the PFBR?

- PFBR was constructed and will be operated by **Bharatiya Nabhikiya**.
  - ◆ Government approved the creation of Bharatiya Nabhikiya Vidyut Nigam Ltd (BHAVINI) in **2003**.
- The PFBR is a machine that **produces more nuclear fuel than it consumes**.

### The Salient Feature of the Reactor:

- The Fast Breeder Reactor (FBR) will initially use the **Uranium-Plutonium Mixed Oxide (MOX) fuel**.
- The **Uranium-238** "blanket" surrounding the fuel core will undergo **nuclear transmutation** to produce **more fuel, thus earning the name 'Breeder'**.
- The use of **Thorium-232**, which in itself is not a fissile material, as a blanket is also envisaged in this stage.
  - ◆ By transmutation, Thorium will create fissile **Uranium-233** which will be **used as fuel in the third stage**.

### Significance of the Fast Breeder Reactor

- FBR is a stepping stone for the third stage of the program paving the way for the **eventual full utilization of India's abundant thorium reserves**.
- It can produce more fuel than it consumes, thus **helping in achieving self-reliance** in fuel supply for future fast reactors.
- It is an advanced third-generation reactor with inherent passive safety features, ensuring a **prompt and safe shutdown** of the plant **in an emergency**.
- Since it uses spent fuel from the first stage, FBR also offers an **advantage in a significant reduction in nuclear waste generated**.
- Once commissioned, India will be the **second country after Russia** to have a **commercially operating fast breeder reactor**.

### India's Three-stage Nuclear Program

- **Homi J. Bhabha** designed the three-stage programme as India has **limited domestic uranium resources** but **has abundant Thorium**.
- The three stages are expected to allow the country **complete self-sufficiency in nuclear energy**.
- **First Stage (Pressurized Heavy Water Reactors - PHWRs):** India's nuclear program initially focused on establishing a fleet of PHWRs.
  - ♦ These reactors use natural uranium (**U-238**), which contains minuscule amounts of **U-235**, as the fissile material.
  - ♦ Heavy water (deuterium oxide) **as both moderator and coolant**.
  - ♦ The primary purpose of this stage was to **produce plutonium-239 as a byproduct from the uranium fuel**.
  - ♦ **Plutonium-239 is a fissile material** used as fuel in nuclear reactors.
- **Second Stage (Fast Breeder Reactors - FBRs):** The second stage of the program involves the **deployment of Fast Breeder Reactors (FBRs)**.
  - ♦ FBRs are designed to produce **more fissile material than they consume** by utilizing a fast neutron spectrum.
  - ♦ In this stage, **plutonium-239** produced in the first stage is used as fuel along with **U-238** to produce energy, **U-233**, and **more Pu-239**.
  - ♦ **Uranium-233 is another fissile material** that can be used as fuel in nuclear reactors.
- **Third Stage (Advanced Heavy Water Reactors - AHWRs):** The final stage of the program entails the **deployment of Advanced Heavy Water Reactors (AHWRs)**.

- ♦ **Pu-239 will be combined with thorium-232 (Th-232)** in reactors to **produce energy and U-233**.
- ♦ Thorium is abundantly available in India, and this **stage aims to harness its potential as a nuclear fuel**.

## CRITICAL MINERALS

### Context

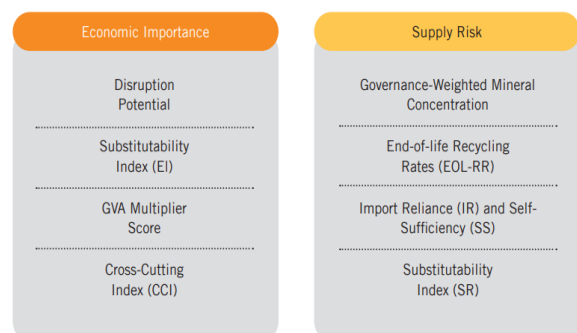
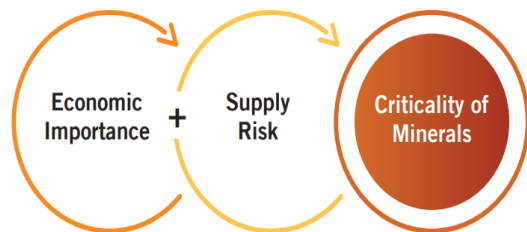
- India recently launched the **auction of 18 critical and strategic mineral blocks** valued at around **30 lakh crore**.

### About

- It is in line with the **country's ambition to generate 50 percent of its electric power from non-fossil sources** by 2030, thus aligning with **global sustainability goals**, emphasizing **responsible exploration and extraction** of critical minerals.

### What are Critical Minerals?

- A mineral is labelled as critical when the **risk of supply shortage and associated impact on the economy is relatively higher** than the other raw materials.
- The risk of supply shortage would ideally capture **import dependence, recycling potential, and substitutability** of these minerals.
- The **Centre for Socio and Economic Progress (CSEP)** in its paper "**Assessing the Criticality of Minerals in India**" (2023) evaluated the criticality of minerals in India based on two dimensions:
  - a) **economic importance for the Indian economy and**
  - b) **supply risks.**



### Significance of Critical Minerals

- Critical minerals are essential for our **country's economic development and national security** as they are crucial for sectors like **renewable energy, defense, pharmaceuticals, and high-tech electronics**.
- The lack of availability of these minerals or concentration of their extraction or processing in a few countries may lead to **supply chain vulnerabilities**.
  - ♦ The net import reliance for critical minerals of India has been shown below:

Sl. No.	Critical Mineral	Percentage (2020)	Major Import Sources (2020)
1.	Lithium	100%	Chile, Russia, China, Ireland, Belgium
2.	Cobalt	100%	China, Belgium, Netherlands, US, Japan
3.	Nickel	100%	Sweden, China, Indonesia, Japan, Philippines
4.	Vanadium	100%	Kuwait, Germany, South Africa, Brazil, Thailand
5.	Niobium	100%	Brazil, Australia, Canada, South Africa, Indonesia
6.	Germanium	100%	China, South Africa, Australia, France, US
7.	Rhenium	100%	Russia, UK, Netherlands, South Africa, China
8.	Beryllium	100%	Russia, UK, Netherlands, South Africa, China
9.	Tantalum	100%	Australia, Indonesia, South Africa, Malaysia, US
10.	Strontium	100%	China, US, Russia, Estonia, Slovenia
11.	Zirconium(zircon)	80%	Australia, Indonesia, South Africa, Malaysia, US
12.	Graphite(natural)	60%	China, Madagascar, Mozambique, Vietnam, Tanzania
13.	Manganese	50%	South Africa, Gabon, Australia, Brazil, China
14.	Chromium	2.5%	South Africa, Mozambique, Oman, Switzerland, Turkey
15.	Silicon	<1%	China, Malaysia, Norway, Bhutan, Netherlands

Table.1 The net import reliance for critical minerals of India (2020) (Source: A report on 'Unlocking Australia-India Critical Minerals Partnership Potential' by Australian Trade and Investment Commission, July 2021)

- The future global economy will be underpinned by **technologies that depend on minerals** such as lithium, graphite, cobalt, titanium and rare earth elements (REE).
- India has committed to achieve **50% of cumulative electric power installed capacity from non-fossil sources by 2030**.
  - ♦ Such an ambitious plan for energy transition is set to drive the demand for electric cars, wind and solar energy projects.
- Critical minerals cater to the needs of sectors like **renewable energy, defence, agriculture, pharmaceutical, high-tech electronics, telecommunications, transport, creation of gigafactories** etc.

### Recent Developments

- An amendment to the **MMDR Act in 2023 identified 24 minerals as critical and strategic**, empowering the Central Government to grant mineral concessions.
  - ♦ Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Chromium, Cobalt, Copper, Gallium, Germanium, Graphite,

Hafnium, Indium, Lithium, Magnesium, Molybdenum, Niobium, Nickel, Platinum Group Metals (PGMs), Rare Earth Elements (REEs), Rhenium, Selenium and Silicon.

- ♦ The amendment **confers the power to grant mineral concession of these minerals to the Central Government** and the **revenue generated from these auctions shall accrue to State Governments**.
- The Ministry of Mines also announced **expansion of its Science and Technology Programme to fund research and innovation in startups and MSMEs in the Mining sector**.

### Domestic and global outreach by India

- The Geological Survey of India has carried out a mineral exploration during Field Season 2020-21 and 2021-22 in **Salal-Haimna areas of Reasi district, Jammu & Kashmir**, and estimated an inferred resource of 5.9 million tonnes of lithium ore.
- In addition, a joint venture company namely **Khanij Bidesh India Ltd. (KABIL)** has been mandated to identify and acquire overseas mineral assets of critical and strategic nature such as lithium, cobalt and others.
- **India has recently been inducted into the Mineral Security Partnership (MSP)**.

### Mineral Security Partnership (MSP):

- It is a **US-led collaboration of 14 countries** that would focus on the **supply chains of minerals** such as Cobalt, Nickel, Lithium, and also the 17 'rare earth' minerals.
- **Members:** Australia, Canada, Finland, France, Germany, India, Italy, Japan, the Republic of Korea, Norway, Sweden, the UK, U.S., and the EU.
- **Mandate:** To catalyse public and private investment in critical mineral supply chains globally.

### Way Ahead

- This auction process is poised to play a **pivotal role in supporting India's economy, fortifying national security, and bolstering efforts** towards a sustainable and clean energy trajectory.
- Further, India needs to **diversify its import sources** for critical minerals to reduce reliance on a single supplier, **form strategic partnerships** with countries rich in critical minerals and **collaborate with developed countries for research and development**.

## GLOBAL WARMING AND IMPACT ON INDIA

### Context:

- About **90% of the Himalayan Region is going to experience drought** lasting over a year if global warming increases by **3 degrees Celsius**, according to new research led by researchers at the University of East Anglia (UEA) in the U.K.

### Major Highlights of the Study

- **Pollination:** It found that in India **pollination is reduced by half at 3-4 degrees** global warming compared to a **quarter reduction at 1.5 degrees**.
- **Biodiversity: Limiting warming to 1.5 degrees Celsius** allows **half the country** to act as a **refuge for biodiversity**, compared with **6% at 3 degrees**, the researchers said.
- **Agriculture:** The team found more than **50% of the agricultural land in India** will be **exposed to drought with 3 degrees Celsius warming** and is projected to be exposed to severe droughts of longer than one year over a 30-year period.
- **Sea-level rise:** Economic damages associated with sea-level rise are projected to increase in coastal nations, but more slowly if warming was limited to 1.5 degrees Celsius, they said.
- **Natural capital risk:** Areas in the six countries studied, including India, are already at high natural capital risk at 1.5 degrees Celsius when effects of increasing human population are accounted for.
- **Climate change risks:** They provide additional confirmation of the rapid escalation of climate change risks with global warming found in the Intergovernmental Panel of Climate Change (IPCC) 2022 report, which identifies how the risk of severe consequences increases with every additional increment of global warming.

### Suggestions/Recommendations

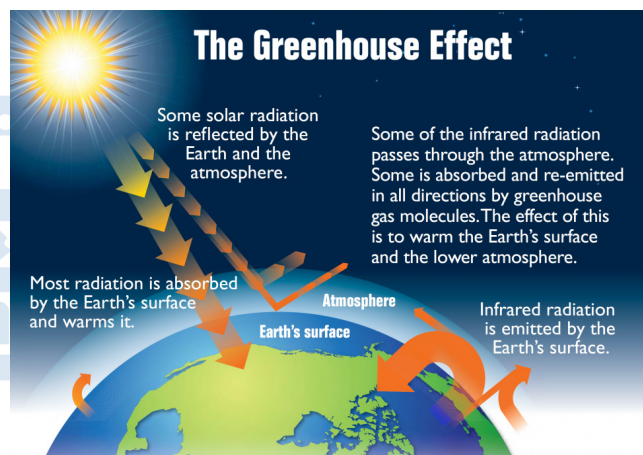
- **Adhere to Paris agreement goals:** Limiting global warming to 1.5 degrees Celsius would reduce the increase in exposure of agricultural land to drought by between 21% , 80% of the increased human exposure to heat stress can be avoided and also economic damages due to fluvial flooding can be reduced.
- **Enhanced efforts:** The researchers warned that more effort is needed to reduce global warming, as currently the policies in place globally are likely to result in 3 degrees Celsius of global warming.
- **Expansion of protected area:** The findings also showed that an expansion of protected area networks is necessary in order to deliver climate

resilient biodiversity conservation.

- **Mitigation as well as adaptation:** Greater emphasis needs to be placed on both climate change mitigation and climate change adaptation to avoid large increases in risk to both human and natural systems.
- **Restore ecosystems:** A good way to combat the effects of climate change on natural systems and soak up carbon from the atmosphere is to restore ecosystems to their natural state. This has the additional benefit of restoring the natural capital bank in these areas.

### Global warming

- It refers to the **long-term heating of Earth's climate system** observed since the **pre-industrial period (between 1850 and 1900)**, primarily due to human activities.
- This process **releases greenhouse gases like carbon dioxide, trapping heat in the atmosphere** and causing the planet to warm.



## NEWS IN SHORT

### HANGULS

#### Context:

- Recently, the experts suggested that the number of Hanguls in Kashmir will cross 300 this spring, the first time in more than three decades.

#### About the Hangul (aka the Kashmir Stag):

- It is a unique **subspecies of the Asian Red Deer**. It is the **State Animal of Jammu and Kashmir**.



- Hanguls are, by nature, **high-altitude forest dwellers**.
- **Distribution: Dachigam National Park** and its nearby areas; **Rajparian Wildlife Sanctuary**, Overa Aru, Sind Valley, and the forests of **Kishtwar and Bhaderwah** in Jammu and Kashmir.

#### Conservation Efforts:

- In 1947, around 2000 were spotted and the number fell to 384 by 1968.
- Despite being the state animal of Jammu and Kashmir, only 289 individuals of this elusive species remain.
- **IUCN's Red Data Book:** Critically Endangered
- **Project Hangul:** In an effort to address the decreasing population of the Hangul, the **government of Jammu and Kashmir**, in collaboration with the **IUCN and WWF**, initiated this project.

## GEOGRAPHICAL INDICATION (GI) TAG

### In Context

- Tamil Nadu Agricultural Budget 2024-25 mentioned the **10 agricultural products for whom Geographical Indication (GI) tag would be obtained**.

### About

- **The GI tags would be obtained for** Sathayamangalam Red Banana (Erode), Kolli Hills Pepper (Namakkal), Meenambur Seeraga Samba (Ranipet), Ayyampalayam Nettai Thennai (Dindigul), Urigam Puli (Krishnagiri), Bhuvanagiri Mithi Pagarkai (Cuddalore), Sencholam (Salem, Karur), Tirunelveli Senna Leaf (Tirunelveli), Odapatti Seedless Grapes (Theni), Gloriosa Superba and Senganthal seed (Karur, Dindigul, Tiruppur).

### What is a GI Tag?

- A geographical indication (GI) is a **sign used on products** that have a **specific geographical origin** and possess qualities or a reputation that are due to that origin.
- Geographical Indications are part of the **intellectual property rights** that come under the **Paris Convention for the Protection of Industrial Property**.
- In India, Geographical Indications registration is administered by the **Geographical Indications of Goods (Registration and Protection) Act of 1999**.
- Geographical indications are typically used for **agricultural products, foodstuffs, wine**

**and spirit drinks, handicrafts, and industrial products.**

- The registration of a geographical indication is **valid for a period of 10 years**, it can be renewed from time to time for a further period of 10 years each.

### Benefits of GI Tag

- It confers **legal protection** to Geographical Indications in India which in turn **boost exports**.
- Prevents **unauthorised use** of a Registered Geographical Indication by others.
- It promotes **economic prosperity of producers** of goods produced in a geographical territory.

## VENICE BIENNALE

### Context:

- The **60th edition of the Venice Biennale**, known as **"the Olympics of the art world"**, will open on April 20, 2024.

### Venice Biennale

- The Venice Biennale is **one of the biggest and most prestigious art fairs** in the world, **beginning in 1895**.
- Biennale is an Italian word which means **'every other year'**. Over the years, however, it has come to mean a large international exhibition that takes place **every two years**.
- Biennales feature **contemporary art by artists** from various countries that are usually linked by a common curatorial theme, providing a framework for exploring contemporary social, economic and political ideas in an international context.

### India's participation

- **India made its debut at the Biennale in 1954**. Recording robust sales, the exhibition comprised over 50 paintings of masters such as M F Husain, S H Raza, Jamini Roy, Amrita Sher-Gil, and Francis Newton Souza.
- **After 1954, the country officially participated in the event in 2011**. The exhibition was organised by Lalit Kala Akademi and curated by Ranjit Hoskote. It featured works by artists like Zarina Hashmi, Gigi Scaria, Praneet Soi, and the Desire Machine Collective.
- **At the 2019 Venice Biennale**, the Ministry of Culture, Confederation of Indian Industry, National Gallery of Modern Art, and Kiran Nadar Museum of Art (KNMA) in collaboration organised the Indian pavilion.