

WHAT IS G7?



Recently, G7 energy ministers discussed a possible time frame for phasing out coal-fired power plants.

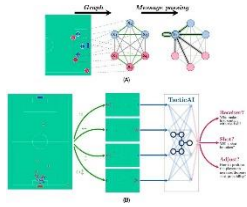
G7 is an **intergovernmental organisation** of leading industrialised nations formed in 1975. It **meets annually** to discuss issues such as global economic governance, international security, and energy policy.

- **Member countries:** Canada, France, Germany, Italy, Japan, the United Kingdom and the United State. Apart from the 7 member countries, the **European Union** (EU) has also participated fully in the G7 since 1981 as a “non-enumerated” member.
- **Presidency:** The host of the G7 summit, also known as the **presidency, rotates annually** among member countries. It was formerly referred to as the G-8 until Russia was suspended from the group in 2014 after annexing Crimea.

Some of the key principles of the G7 include:

- **Democracy:** G7 countries promote democratic values and institutions, including free and fair elections, the rule of law, and the protection of individual rights and freedoms.
- **Human rights:** They support the protection and promotion of human rights around the world, including civil, political, economic, social, and cultural rights.
- **Free and fair trade:** They are committed to promoting international trade and investment based on open, transparent, and non-discriminatory rules.
- **Environmental protection:** They are committed to reducing greenhouse gas emissions, protecting biodiversity, and addressing other environmental challenges.
- **Peace and security:** They are committed to promoting international peace and security, and to preventing and resolving conflicts through diplomatic means.

WHAT IS TACTICAI?



Google's DeepMind developed and evaluated TacticAI in a multi-year research collaboration with experts from Liverpool Football Club.

TacticAI is an AI system that can provide experts with tactical insights, particularly **on corner kicks** (football), through predictive and generative AI. It can be used by football team managers as an assistant for tactics. It is developed by **Google's DeepMind**.

- It has been incorporated both a **predictive and generative component** to allow coaches to effectively sample and explore alternative player setups for each corner kick and to select those with the highest predicted likelihood of success.

Why specifically corners?

- Corner kicks are apt for strategising by leveraging AI tools, primarily because they are moments when the game is effectively frozen — and always **starts from the same kind of position at the corner of the pitch** while giving players an immediate opportunity to score.
- Strategies for corners are usually also decided long before the players actually go on to the pitch, so that there is no confusion on match day.
- For every corner kick, AI can help- 1) understand what will happen and what happened; and 2) how to adjust tactics to make a particular outcome happen.
- **What is a corner shot in football?** A corner is awarded when the ball passes over the goal line after touching a player of the defending team.

ISRO TO CONDUCT AIR-DROP TEST OF GAGANYAAN CREW MODULE

Gaganyaan Mission:

- The Gaganyaan mission is India's ambitious project undertaken by the Indian Space Research Organisation (ISRO) **to send astronauts into space**.
- **Objective:**

- To demonstrate India's capability to send humans into space, **making it the fourth nation after the United States, Russia, and China to achieve this feat independently.**
- **Timeline:**
 - The Gaganyaan mission was announced by Prime Minister Narendra Modi on August 15, 2018, with a target to launch the first crewed mission by 2022 to coincide with the 75th anniversary of India's independence.
 - However, due to various factors, including the COVID-19 pandemic, the timeline has been pushed to a later date.
- **Components of the Mission:**
 - **Crew Module:** The crew module is the spacecraft that will carry Indian astronauts into space and return them safely to Earth.
 - It is being developed to accommodate a crew of two to three astronauts.
- **Launch Vehicle:**
 - ISRO plans to use the Geosynchronous Satellite Launch Vehicle (**GSLV Mk III**) to launch the crew module into space.
- **Training Facilities:**
 - ISRO has been working on setting up astronaut training facilities, including the Human Space Flight Centre (HSFC) in Bengaluru, where astronauts will undergo rigorous training in areas such as microgravity, emergency procedures, and spacecraft operations.
- **Life Support Systems:**
 - The crew module will be equipped with life support systems to ensure the safety and well-being of the astronauts during their space journey.
- **Mission Control Centre:**
 - ISRO will establish a dedicated Mission Control Centre to monitor and control the Gaganyaan mission from the ground.

Selection & Training of Astronauts:

- ISRO has selected four astronauts for the Gaganyaan mission.
 - The selection criteria included physical fitness, psychological resilience, and expertise in relevant fields such as engineering and medicine.
- Selected astronauts are currently undergoing extensive training both in India and abroad to prepare for the challenges of space travel.
- Out of the four astronaut designates, or “vyomnauts”, being trained, **three will be selected for the final mission.**

Air-Drop Test of Gaganyaan Crew Module:

- The Indian Space Research Organisation (ISRO) is likely to undertake an important test under the Gaganyaan mission to check the parachute system of the crew module in the next few days.
- The Integrated Air Drop Test (IADT) will see a Chinook helicopter dropping the crew module from a height of around 4-5 km.
- The crew module, designed to ensure the safe return of astronauts from space, will be dropped from an altitude of approximately 3.5 to 4 kilometers using an Indian Air Force helicopter.
- This procedure aims to assess the parachute system's functionality and the capsule's overall stability and safety during descent.
- This pivotal test forms part of the preparatory steps leading up to India's ambitious manned spaceflight which is **likely to take place in 2025.**

STUDY ANALYSED DEATHS CAUSED BY LIGHTNING IN BIHAR

What is lightning?

- **About**
 - Scientifically, lightning is a rapid and massive discharge of electricity in the atmosphere some of which is directed towards earth.
 - The discharges are generated in giant moisture-bearing clouds that are 10-12 km tall.

- The base of these clouds typically lie within 1-2 km of the Earth's surface, while the top is 12-13 km away. Temperatures in the top of these clouds are in the range of -35° to -45°C .
- **Mechanism**
 - **Smaller ice crystals are moving up while bigger crystals are coming down**
 - As water vapour moves upward in the cloud, the falling temperature causes it to condense.
 - As they move to temperatures below 0°C , the water droplets change into small ice crystals.
 - They continue to move up, gathering mass until they are so heavy that they start to fall to Earth.
 - This leads to a system in which, simultaneously, smaller ice crystals are moving up and bigger crystals are coming down.
 - **Collision between these crystals and release of electrons**
 - Collisions follow and trigger the release of electrons, a process that is very similar to the generation of sparks of electricity.
 - As the moving free electrons cause more collisions and more electrons, a chain reaction ensues.
 - **Potential difference between top layer and middle layer of the cloud**
 - This collision results in a situation in which the top layer of the cloud gets positively charged, while the middle layer is negatively charged.
 - The electrical potential difference between the two layers is huge, of the order of a billion to 10 billion volts.
 - In very little time, a massive current, of the order of 100,000 to a million amperes, starts to flow between the layers.
 - **Earth - a good conductor of electricity**
 - While the Earth is a good conductor of electricity, it is electrically neutral.
 - However, in comparison to the middle layer of the cloud, it becomes positively charged.

- As a result, about 15%-20% of the current gets directed towards the Earth as well.
- It is this flow of current that results in damage to life and property on Earth.

Areas which are lightning-prone

- As per the report released by the Climate Resilient Observing Systems Promotion Council (CROPC) in 2022, following states are more vulnerable to lightning strikes:
 - Madhya Pradesh followed by Chhatisgarh, Maharashtra, Odisha and West Bengal.
 - Other states with high strike rate include Bihar, UP, Karnataka, Jharkhand and Tamil Nadu.
- Lightning is fairly common, though it is not often realised in the urban centres.
- In India, well over one crore lightning strikes have been recorded in recent years.
 - It is only over the last few years that lightning records have begun to be maintained, due to the efforts of CROPC and India Meteorological Department.

WHAT IS TAAM JA' BLUE HOLE?



Scientists have yet to reach the bottom of the Taam Ja' Blue Hole in Mexico's Chetumal Bay, which new measurements hint could be connected to a labyrinth of submarine caves and tunnels.

Blue Hole are **water-filled vertical caverns, or sinkholes**, found in coastal regions where the bedrock is made of soluble material, such as limestone, marble, or gypsum.

- They form when water on the surface percolates through the rock, dissolving minerals and widening cracks, which eventually causes the rock to collapse.
- Famous **examples** include Dean's Blue Hole in the Bahamas, the Dahab Blue Hole in Egypt, and the Great Blue Hole in Belize.

About Taam Ja' Blue Hole:

- It is the **deepest known underwater sinkhole** in the world.
- It sits in **Chetumal Bay** off the **southeast coast** of the **Yucatan Peninsula** in Mexico.

- It is 390 feet (119 m) deeper than the **previous record holder**— the 990-foot-deep (301 m) **Sansha Yongle Blue Hole**, also known as the **Dragon Hole**, in the **South China Sea**.
- Spread over an area of 13,660 square meters, the giant, underwater cavern has been named Taam Ja' which means "deep water" in Mayan.
- The submerged blue hole has a **nearly circular shape at its surface** with **steep sides** that form a large conic structure covered by biofilms, sediments, limestone, and gypsum ledges.

Key facts about Yucatan Peninsula:

- It is a **northeastern projection of Central America**, extending into the Atlantic Ocean.
- The Gulf of Mexico lies on its western and northern sides. The Caribbean Sea lies on its eastern side. The northern part of Yucatán is in Mexico. Belize and a part of Guatemala are in the south.
- The peninsula is almost wholly **composed of beds of coralline and porous limestone rocks**.

WHY IS VENICE CHARGING AN ENTRY FEE FOR TOURISTS?

In order to control overtourism, Venice, a city in Italy, introduced (on a trial basis) an entry fee for visitors who are coming in to visit the city.

What is the Access Fee?

Day-trippers coming to the city are now required to pay €5. **Overnight visitors are not charged**, nor are residents, commuters, students or children under 14. The entrance fee is only necessary to enter Venice's historic centre.

Why has it been Introduced?

It's a first-of-its-kind experiment to **lessen overcrowding, promote longer stays and enhance the quality of life for locals**. It's an effort to **find a new equilibrium** between residents and visitors. It would also **aid in gathering basic data and controlling visitor flows**.

What has been the Response?

A number of residents' associations have protested, **claiming that it is a political ploy** and have also brought up **privacy-related issues**. On its first day, 5,500 individuals purchased tickets, **bringing in €27,500, which may just be enough to cover operating costs**.

What are the Issues Faced by Venice due to Overcrowding?

The city experiences congestion. Venice just managed to avoid being included on UNESCO's **danger list** last year due to the harm that overtourism was causing to its fragile ecosystem. Due to mass tourism, the **population of Venice's main island shrank to fifty thousand**.

What can be the Potential Impacts of Tourist Tax?

It may **re-establish a more sustainable relationship with tourists**. People operating **illegal rentals will need to register legitimately** (and pay tax) since anyone staying overnight will have to disclose where they are staying.

'UNCLASSED' FORESTS

What are Unclassed Forests?

- **Unclassed or deemed forests** may belong to forests, revenue, railways and other government entities, community forests or those under private ownership, but are **not notified**.
- The unclassified forests had **legal protection** under the landmark case - **N. GodavarmanThirumalpad (1996)**.
 - It specified that 'forests' as per their dictionary meaning and **all categories of forests** irrespective of ownership and notification status **would be included under the ambit of the Forest (Conservation) Act 1980**.
- **The SEC reports were to be prepared in pursuance of the order**. SECs were to identify all such forests across the country through
 - Available records i.e. Forest Working Plans, Revenue land records, etc., and

- By physical identification of any land patch having the nature of forests as per dictionary meaning regardless of its ownership.
 - As a result, unclassified forests would also **require the Central government approval** in case a project proponent sought to divert that land for non-forest use, after multiple other layers scrutiny.
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WHAT IS SALMONELLA?



The United States has reportedly refused almost a third of shipments from MDH since October 2023 due to salmonella contamination.

Salmonella is a group of bacteria that can cause **gastrointestinal illness** and fever called salmonellosis. It naturally **lives in animals' intestines** and can be found in their feces.

- The bacteria then spread to humans if they come in contact with salmonella-infected animals or items in their environment.
 - It is a **ubiquitous and hardy bacteria** that can survive several weeks in a dry environment and several months in water.
 - **Risks associated with Salmonella:**
 - People infected with Salmonella might have **diarrhea, fever, and stomach** Some people—especially children younger than 5 years old, adults 65 years and older.
 - People with weakened immune systems—may experience more severe illness that requires medical treatment or hospitalization.
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