

Prelim Bits 16-02-2024 | UPSC Daily Current Affairs

Antarctic Treaty 1959

Iranian Navy Commander Shahram Irani reportedly announced in September 2023 that they have owned Antarctica and would build a military operation there, triggered a threat to Antarctic Treaty of 1959.

- **Antarctic Treaty** - Signed in **1959 in Washington**, by 12 countries then active in Antarctic science and entered into force in 1961.
- **Aim** - To make Antarctic Continent as demilitarized zone to be preserved for scientific research only.
- **Coverage** - It covers the area south of 60°S latitude.
- **Parties** - **56**, India became a party in 1983.
- **Secretariat** - Buenos Aires, **Argentina**.

Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, UK, the USA and erstwhile USSR were the 12 original signatories to Antarctic Treaty.



- **Claims** - All historical claims before the treaty are all put on hold, they are neither recognised nor disregarded, and no new claims can be made while the Treaty is in force.
- 7 countries that had territorial claims before the treaty are Australia, New Zealand, Argentina, Chile, France, Norway and UK.
- **Supplementary agreements**
 - Convention on the Conservation of Antarctic Seals in 1972
 - Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) in 1980
 - The Protocol on Environmental Protection in 1991

Antarctica

- It denotes all land and ice shelf south of 60°S, but not the surrounding waters.
- **Area** - It is the 5th largest continent in terms of total area, larger than both Oceania and Europe.
- **Ice** - It has 70% of all the worlds freshwater frozen as ice and 90% of all the world's ice, while 0.32% of total area are Ice-free.
- **Features** - It has Ross Ice Shelf (about the size of France) and Ronne-Filchner ice shelf (about the size of Spain).
- Mt. Vinson (4892m) is the highest mountain.
- **Population** - There are no permanent residents and never has been a native population.
- Only people residing there are scientist on their research bases.

References

1. [Hindustan Times| US against Iran's claims over Antarctica](#)
2. [ATS| Antarctic Treaty of 1959](#)
3. [Coolantarctica| Antarctica](#)

Mahavir Statue in Tamil Nadu

A rare and ancient stone statue of Mahavir has been unearthed by a group of archaeology students and professors in Tamil Nadu.

- **Stone material** - Granite.
- **Features** - It depicts *Mahavir sitting on a throne with makara-toranas* (arches with mythical creatures) on both sides.
- A *triple umbrella* is present above his head, which has creepers carved on it.
- He is flanked by sculptures of *yakshas* (attendant deities).
- It also has a halo behind his head, called *prabhavali*, which has a tiara design representing
 - Chandraditya (moon and sun)
 - Nityavinoda (eternal bliss)
 - Kala-bhasana (time and speech).
- **Time period** - Based on the style and technique, it is believed to be from *11th century AD, during the Chola* period.
- **Significance** - It sheds light on *Jain art and culture in Tamil Nadu*, emphasizing its rich religious and historical heritage.
- It is also a *reminder of the tolerance and harmony* that existed among different faiths and communities in the past.

Vardhamana Mahavira

- **Birth** - 599 BC (as per Svetambars) or 615 BC (as per Digambar Jains) in *Kundagrama near Vaishali*.
- **Death** - At the age of 72 in 527 B.C.E, at the *Pavapuri* in Bihar.
- **Lineage** - His father Siddharta was the head of the *Jnathrika Kshatriya clan* and his mother Trishala was a sister of Chetaka, the king of Vaishali.
- **Spiritual life** - He become an *ascetic at the age of 30 years* and practised austerity for *12 years* before attaining the highest spiritual knowledge called *Kaivalya* (i.e. conquered misery and happiness) at the age of 42 years.
- **Tirthankara** - People who had attained all knowledge (Moksha) while living and preached it to the people.
- He is considered as *24th and the last Tirthankara*.
- *Jainism* attained prominence after his arrival.

Svetambars and Digambars are the 2 sects of Jainism.

References

1. [The Times of India| Discovery of Mahavir Statute in Tamil Nadu](#)
2. [The Economic Times| Vardhamana Mahavira](#)

Vermin Species

Kerala Legislative Assembly has unanimously passed a resolution urging the Centre to address the escalating human-animal conflict in the state and to classify wild boar as vermin.

- **Vermin** - It means any **wild animal notified under section 62** of Wildlife Protection Act.
- **Need** - To control the population of small wild animals that carry disease and destroy plants and food.

The Wild Life (Protection) Act, 1972

- It provides the legal framework for the
 - Protection of various species of wild animals
 - Management of their habitat
 - Regulation and control of trade in the products derived from various parts of wild animals.
- It was amended in 2022 to increase the protection.
- **Schedule I** - For animal species enjoying the highest level of protection.
- **Schedule II** - For animal species subject to a lesser degree of protection but protected from hunting.
- **Schedule III** - For protected plant species.
- **Schedule IV** - For scheduled specimens under CITES.

- **Declaration of Vermin** - The **Central Government** may, by notification, declare any wild animal specified in Schedule II to be vermin for any area and for such period as may be specified therein and so long as such notification is in force.
- Once declared as vermin, these animals can be hunted.
- Currently, it includes only 4 species of wild animals namely Common Crows, Fruit Bats, Rats, and Mice.
- **Authority empowering hunting** - Section 11 of the Act empowers Chief Wildlife Warden of a State (CWLW)
 - To declare any wild animal specified in Schedule I to be hunted if it has become dangerous to human life or disabled or diseased beyond recovery.
- Kerala wants to amend this powers to be given to Chief Conservators of Forests (CCF) to enable speedy and timely decisions taken at a more localised level.

References

1. [The Indian Express| Kerala's Demand to Amend 1972 WPA Act.](#)
2. [Indiacode| Wildlife Protection \(Amendment\) Act, 2022](#)

Wheat Blast

A new study has warned of links between warming climate and the devastating plant disease wheat blast.

- It is a ***fungal disease*** for warm and humid wheat production regions whose outbreak was 1st reported in Brazil in 1985.
- **Caused by** - *Magnaporthe oryzae* pathotype Triticum (MoT).

***Magnaporthe oryzae** can infect many grasses, including barley, lolium, rice, and wheat.*

- **Spread** - It originated in South America and spread to North America in 2011, to Asia in 2016 and to Africa in 2018.
- **Suitable conditions** - *Rain, followed by hot, humid weather* during the flowering stage, can promote disease development.

By 2050, there will be more wheat blast-prone locations due to a confluence of factors like increasing temperatures and persistent leaf moisture.

- **Transmission** - Through *infected seeds, crop residues*, as well as by spores that can travel long distances in the air.
- **Disease** - It can *shrivel and deform the grain* in less than a week from 1st symptoms, leaving farmers no time to act.



- **Impact** - It alone has the potential to cut wheat production worldwide by 13%, affects food security.
- **Challenges** - It is *resistant to fungicides* and are capable of affecting other crops as well.
- Currently, it threatens 6.4 million hectares and by 2050, climate change is likely to threaten 13.5 million hectares of cropland.
- **Control measure** - Using disease free seed, following crop rotation, removing grassy weeds, choosing appropriate timing of sowing and spraying fungicides.

References

1. [Down To Earth| Climate Change could influence Wheat Blast](#)
2. [National Library of Medicine| Wheat Blast Disease](#)

Magnetic Levitation

Recently, China has claimed that its new magnetically levitated (maglev) train surpassed previous record of speed during trail test in a low-vacuum tube.

- **Maglev** - It is a system in which the *vehicle runs levitated* from the guide way (corresponding to the rail tracks of conventional railways).
- **Principle** - It *uses electromagnetic forces* between *superconducting magnets* on-

board the vehicle and coils on the ground.

Background

- **Electromagnetic force** - It is one of the 4 fundamental forces that *exhibits electromagnetic fields* including both electric forces and magnetic forces.
 - The electric force acts between all charged particles, whether or not they're moving.
 - The magnetic force acts between moving charged particles.
- **Superconductor** - A material that can *conduct electricity* or transport electrons from 1 atom to another with *no resistance*.
- **Superconductivity** - It refers to a state in which a material offers *zero, or near-zero, resistance* to electric current.

- **Working** - *Magnets gets repelled* when brought near a superconductor and leads to levitation.
- *Magnetism will propel* the train forward and levitate it above the tracks.



References

1. [NDTV| China's Maglev Trains reaching greater speeds](#)
2. [ScienceDirect| Magnetic Levitation](#)

Other important topics

Nokhra Solar Project

PM to dedicate 300 MW Nokhra Solar Project of NTPC Green Energy Ltd to the nation.

- The project is located in Bikaner district of Rajasthan and is being executed under the [Central Public Sector Undertaking \(CPSU\) Scheme \(Phase-II\)](#).
- The project aims to ensure green power to the state of Telangana.
- The project works under the aegis of the Ministry of New and Renewable Energy.

Intuitive Machines Mission (IM-1)

Falcon 9 launches first Intuitive Machines lunar lander.

- A moon lander built by Houston-based aerospace company Intuitive Machines was launched from Florida.
- The mission will conduct the [first U.S. lunar touchdown](#) in more than a half century and the first by a privately owned spacecraft.
- The lander from the mission is dubbed as Odysseus.
- The IM-1 flight is carrying 6 [NASA](#) payloads of instruments designed to gather data about the lunar environment.
- Intuitive Machine's IM-2 mission is scheduled to land at the lunar South Pole in 2024, followed by an IM-3 mission later in the year with several small rovers.

Same Sex Marriage in Greece

Greece legalizes same sex marriage in landmark change.

- Greece is one of the first Orthodox Christian countries to allow such unions.
- The law gives same-sex couples the right to wed and adopt children.
- India does not recognise [same-sex marriage](#), civil unions or other forms of partnerships, but provides some limited legal recognition to cohabiting same-sex couples in the form of live-in relationships.

Claude

Claude has been created to tackle socially irresponsible actions by unregulated use of AI.

- Claude is a group of large language models (LLMs) developed by Anthropic, a San Francisco-based artificial intelligence (AI) startup.
- The chatbot is capable of handling text, voice messages, and documents.
- Claude has some limitations compared to [ChatGPT](#) or [Google Gemini](#), mainly when it comes to access to the Internet and extensions.
- Claude is built on Constitutional AI, which allows developers to lay down a constitution, a set of values that the system must follow.

MethaneSAT

Google will use AI to identify methane gas leaks from space.

- Google has partnered with the Environmental Defense Fund (EDF) to launch a satellite project that will gather data on global methane levels.
- [Methane](#) is said to be a significant contributor to global warming due to its heat-trapping properties and is considered to be a more potent greenhouse gas than carbon dioxide.
- Google is using AI to map oil and gas infrastructure to create a global map of pollution sources.

Endometriosis

A report finds women's health gap equates to 75 million years of life lost due to poor health or early death per year.

- Endometriosis is a disease in which tissue similar to the lining of the uterus grows outside the uterus.
- It can cause severe pain in the pelvis and make it harder to get pregnant.
- Endometriosis can start at a person's first [menstrual period](#) and last until menopause.



Kaleshwaram Irrigation Project

CAG says Kaleshwaram project cost likely to exceed Rs. 1.47 lakh crore as against Rs. 81,911 crore projected.

- Kaleshwaram is a town on Godavari right bank about 300 km downstream of major dam, [Sriram Sagar project \(SRSP\)](#).
- At Kaleshwaram, the major tributary Pranahita, which merges with Godavari brings large quantity of water, the place is also known as Sangam and Dakshin Ganga.
- The project proposes to lift about 180 TMC (about 5 billion cubic meters) of water.
- It includes construction of barrages, high speed pumps for transport of water upstream for providing for irrigation.
- Besides, it involves constructions of network storage dams, series of tunnels, canals water passing through several stages of pumping and reverse flow into [Godavari River](#).



Xiaokang

China's Xiaokang border defence villages along the LAC, now being occupied.

- China has been constructing Xiaokang or well-off villages along India's borders with the Tibet Autonomous Region.
- These have been constructed all along the LAC, including the Ladakh and Arunachal Pradesh borders.
- The structures include mostly double-storey, large and spacious buildings.
- They are understood to be dual-use infrastructure, can be used both for civil and military purposes, and have thus been a concern from a defence perspective.
- **Vibrant Village Programme (VVP)** - [VVP](#) has been announced in the Finance Minister's Budget Speech 2022.
- The programme envisages coverage of border villages on India's Northern border having sparse population, limited connectivity and infrastructure, which often get left out from the development gains.



Cairns Group

India faces WTO pressure on farm subsidies amid protests for minimum support price.

- It is a group of [agricultural exporting nations](#) lobbying for agricultural trade liberalization.
- It was formed in 1986 in Cairns, Australia just before the beginning of the Uruguay Round.
- **Members** - The Cairns Group comprises Australia, Brazil and Canada among others members.



Musi River

Rs 58,000-cr Musi river redevelopment possess a significant challenge to the state.

- The river runs in the State of Telangana and is a tributary to the [Krishna River](#).
- The city of Hyderabad is located on the banks of this river.
- It was previously known as the Muchukunda River and originated in the Anantagiri Hills.
- The Himayat Sagar and Osman Sagar dams are built on this river.



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