

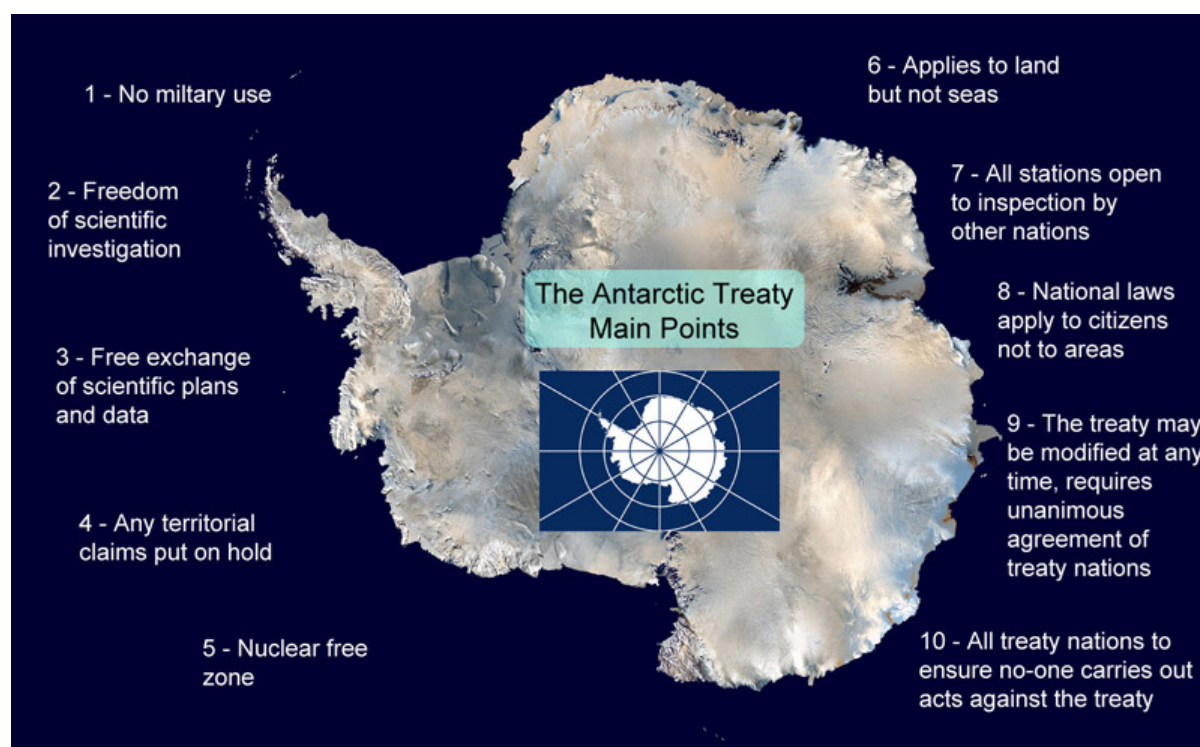
## Prelim Bits 16-02-2024 | UPSC Daily Current Affairs

### 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 5<sup>th</sup> 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 *24<sup>th</sup> 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.*

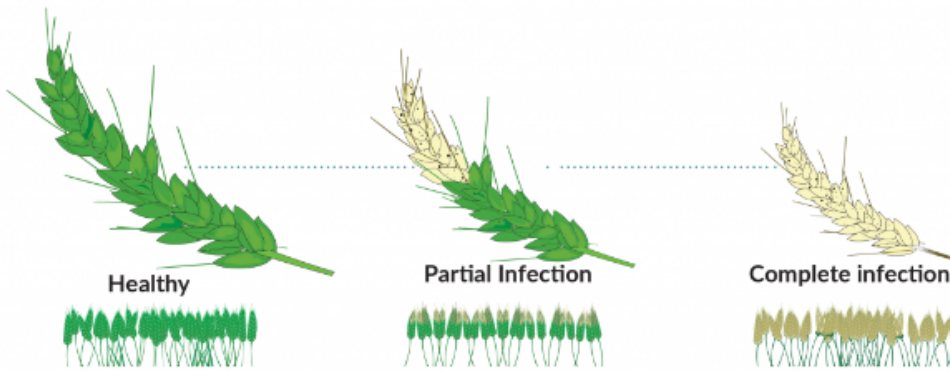
- It is a **fungus disease** for warm and humid wheat production regions whose outbreak was 1st reported in Brazil in 1985.
- **Caused by** - *Magnaporthe oryzae* pathotype Triticum (MoT).

***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 1<sup>st</sup> 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.

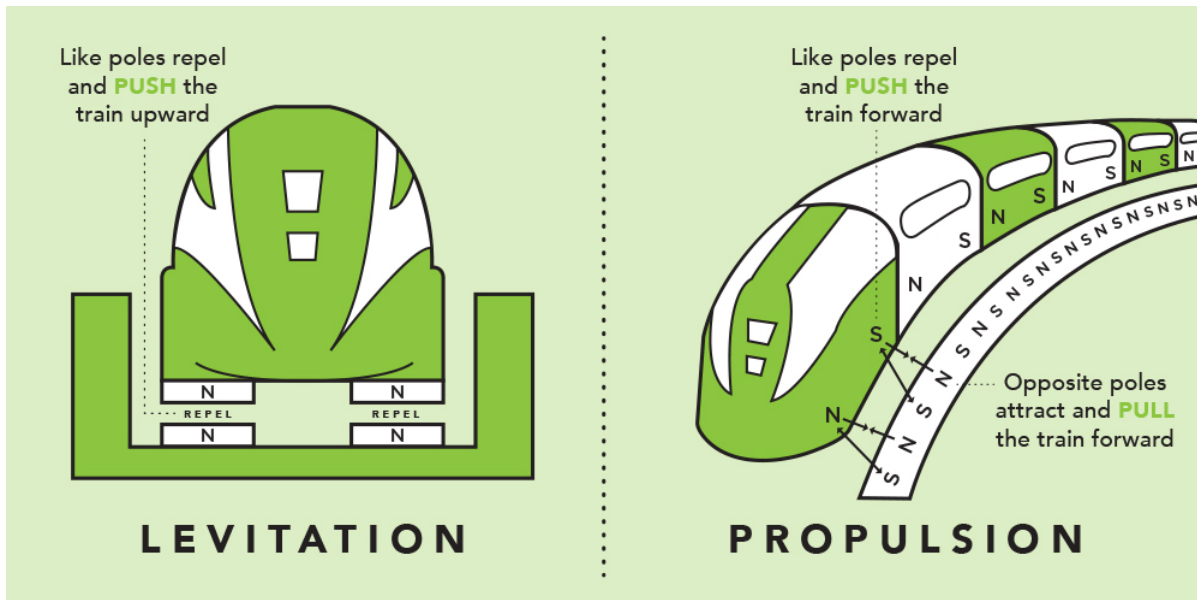
- **Maglev** - It is a system in which the *vehicle runs levitated* from the guide way (corresponding to the rail tracks of conventional railways).
- **Principle** - It *uses electromagnetic forces* between *superconducting magnets* on-board the vehicle and coils on the ground.

### 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

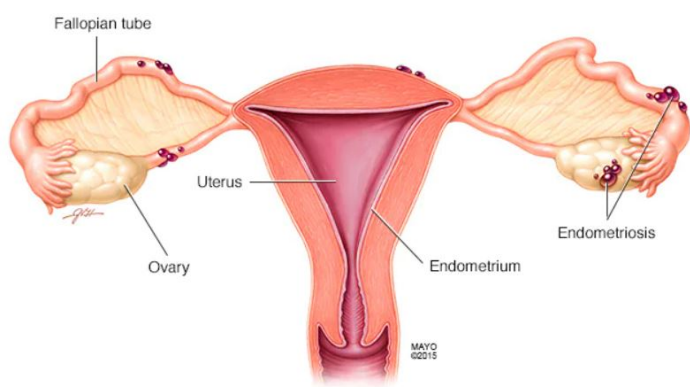
*Google will use AI to identify methane gas leaks from space.*

- 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.*

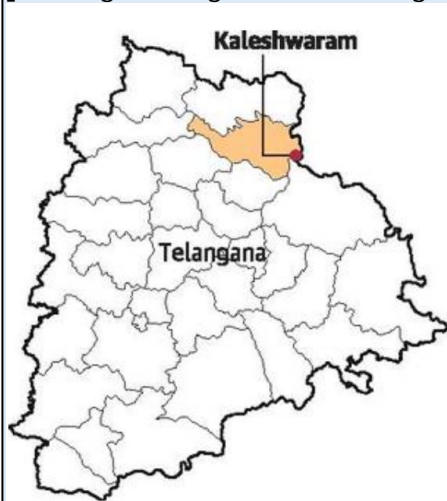
- Endometriosis is a disease in which tissue similar to the lining of the uterus grows outside the uterus.
- It can cause severe pain in the pelvis and make it harder to get pregnant.
- Endometriosis can start at a person's first [menstrual period](#) and last until menopause.



## 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](#).

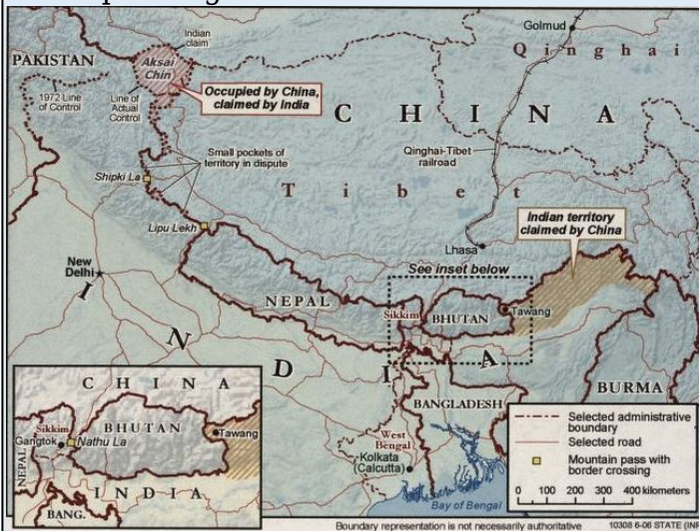


**Xiaokang**



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

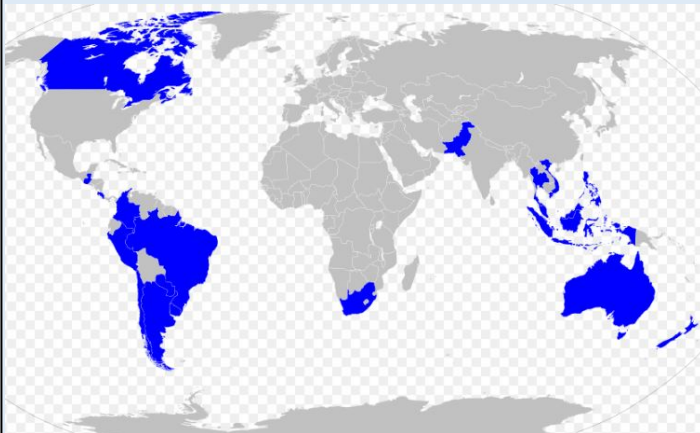
- China has been constructing Xiaokang or well-off villages along India's borders with the Tibet Autonomous Region.
- These have been constructed all along the LAC, including the Ladakh and Arunachal Pradesh borders.
- The structures include mostly double-storey, large and spacious buildings.
- They 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 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.

