Prelim Bits 27-12-2023 | UPSC Daily Current Affairs

Panama Canal

Two important shipping routes the Suez Canal and the Panama Canal are facing blockages.

- It is a lock-type canal, owned and administered by the Republic of Panama.

  Lock-type canal is a system in which an enclosure or basin located in the course of a canal or a river (or in the vicinity of a dock) with gates at each end, within which the water level may be varied to raise or lower boats.

- The Panama Canal connects the Atlantic and Pacific oceans through the narrow Isthmus of Panama.

  Panama Canal is one of the two most strategic artificial waterways in the world, the other being the Suez Canal.

- From its opening in 1914 until 1979, the Panama Canal was controlled solely by the United States, which built it.
- In 1979, however, control of the canal passed to the Panama Canal Commission, a joint agency of the United States and the Republic of Panama, and complete control passed to Panama in 1999.
- The Panama Canal lies at a latitude of 9° N, at a point where the North American Continental Divide dips to one of its lowest points.
- The canal does not cross the isthmus from east to west but runs due south from its entrance at Colón on the Atlantic side through the Gatún Locks to a point in the widest portion of Gatún Lake.

  Traffic through the Panama Canal is a barometer of world trade, rising in times of world economic prosperity and declining in times of recession.

Suez Canal

- It is a sea-level waterway running north-south across the Isthmus of Suez in Egypt to connect to the Mediterranean and the Red seas.
- The canal separates the African continent from Asia, and it provides the shortest maritime route between Europe and the lands lying around the Indian and western

Pacific oceans.

- The canal extends between Port Said in the north and Suez in the south, with dredged approach channels north of Port Said, into the Mediterranean, and south of Suez.
- To the west of the canal is the low-lying delta of the Nile River, and to the east is the higher, rugged, and arid Sinai Peninsula.
- The Suez Canal is an open cut canal system without the locks system.

References

1. The Indian Express – Red Sea attacks, Panama Canal drought
2. Britannica – Panama Canal
3. Britannica – Suez Canal

T+0 Settlement Cycle

The Securities and Exchange Board of India (SEBI) has proposed the introduction of a T+0 facility for clearing and settlement of funds and securities.

- T+0 settlement cycle facilitates for clearing and settlement of funds and securities on T+o (same day) and instant settlement cycle on an optional basis.
- The facility will be in addition to the existing T+1 (trade plus one day) settlement cycle in the secondary markets for the equity cash segment.

SEBI has shortened the settlement cycle to T+3 from T+5 in 2002 and subsequently to T+2 in 2003.

- **Phases -** SEBI proposed to implement the system in two phases:
  1. Phase 1 – T+0 Settlement Cycle
  2. Phase 2 – Instant Settlement Cycle
- In Phase 1, an optional T+0 settlement cycle (for trades till 1:30 PM) is envisaged, with settlement of funds and securities to be completed on the same day by 4:30 PM.
- In Phase 2, an optional immediate trade-by-trade settlement (funds and securities) may be carried out.
- In the second phase, trading will be carried out till 3.30 pm.
- SEBI has suggested that to begin with, T+0 settlement shall be made available in the top 500 listed equity shares based on the market capitalisation.
- The surveillance measures applicable in the T+1 settlement cycle will also apply to securities in the T+0 settlement cycle.
- Securities under the trade-for-trade settlement will not be permitted for T+0.
- **Benefits for clients -** Provides flexibility in terms of faster payout of the funds against the securities to the sellers and faster payout of securities against the funds to the buyers.
- **Benefits for securities market -** Provides flexibility in terms of faster payout of the funds against the securities to the sellers and faster payout of securities against the funds to the buyers.

T+1 Settlement Cycle

- In T+1, settlement of trade takes place in one working day and the investor will get the money on the following day.
- In T+2, settlement of trade takes place in two working days. The broker who handles the trade will get the money on 2nd day, but will credit the amount in the investor's account only on 3rd day.
- If a stock exchange opts for T+1 settlement cycle, it has to mandatorily continue with it for a minimum 6 months.
- Thereafter, if it intends to switch back to T+2, it can do so by giving one month's advance notice to the market.

References

1. The Indian Express – T+0 instant settlement cycle
2. Economic Times – T+0 Settlement Cycle
3. Live Mint – Instant Shares Settlement Cycle

INS Imphal

Recently INS Imphal was commissioned into the Indian Navy.

- INS Imphal (Pennant D68), the third of four warships of Project 15B that together form the *Visakhapatnam class* stealth-guided missile destroyers, is set to be commissioned into the Indian Navy.

  The Visakhapatnam-class destroyers, also classified as the P-15 Bravo class, or simply P-15B, is a class of guided-missile destroyers currently being built for the Indian Navy.

- **Built by -** It is also known by the name Yard 12706 and was built by the Mazagon Dock Shipbuilders Limited (MDSL).
- The propulsion system includes combined gas and gas (COGAG) configuration with four gas turbines.
- The maximum speed is 30 knots and range is 4000 nautical miles.

  It is named after the city of Imphal, honoring the strategic and historical significance of the Northeast region.

Project 15B (P15B)

- Between 2014 and 2016, the Indian Navy commissioned three guided missile destroyers of Kolkata class under a project codenamed '15A'.
- **Project 15 -** These ships were a step ahead of their precursor *Delhi class of ships*.
- It included INS Delhi, INS Mysore and INS Mumbai, built under Project 15 and commissioned between 1997 and 2001.

- The lead ship of Project 15B, INS Visakhapatnam (Pennant No D66), was commissioned into the Indian Navy in November 2021 and the second ship INS Mormugao (D67) in December 2022.
- The fourth ship, D69, which when commissioned will be christened INS Surat, was launched in May last year.
- These ships will be equipped to carry and operate two multi-role helicopters.
- The Project 15B ships are 163 meters long and 17 meters wide, displace 7400 tonnes when fully loaded and have a maximum speed of 30 knots.
- The overall indigenous content of the project is approx. 75%.

The four ships of Project 15B are christened after major cities from all four corners of the country, Visakhapatnam, Mormugao, Imphal and Surat.

The Project 15A (P15A)

- It was launched in 1986 that was redesigned by Directorate of Naval Design including the modern stealth attributes.
- The Kolkata class or Project 15A, of guided missile destroyers is a successor to the Delhi class.
- The Kolkata class included INS Kolkata, INS Kochi and INS Chennai.

A ship class signifies a group of ships built with similar tonnage, usage, capabilities and weaponry.

References

1. The Indian Express – INS Imphal commissioned today
2. Times of India – INS Imphal
3. Hindustan Times – INS Imphal Enters Indian Navy Service

Selfing Syndrome

In the first evidence of rapid evolution, scientists have discovered a flower growing in Paris, France is producing less nectar and smaller flowers to attract fewer pollinators.

Parisian pansies

- **Scientific name -** Viola arvensis; **Common name -** Field Pansy
- **Habitat -** It is a self-pollinating flower, native to Europe, Western Asia, and North Africa.
- It is an herbaceous annual plant with serrated leaves, and usually flowers with white all over, except the bottom petal and dehiscent capsules.

Herbaceous plants include plants that have either an annual, biennial, or a perennial life cycle. Annual herbaceous plants die completely at the end of the

growing season or when they have flowered and fruited, and then new plants grow from seed.

- Recent studies have found that the ongoing convergent evolution of a Selfing Syndrome threatens plant pollinator interactions.

Selfing Syndrome

- Selfing syndrome refers to plants that are autogamous and display a complex of characteristics associated with self-pollination.

Autogamous species are those whose ovules are (predominantly) fertilized by pollen from the same flower.

- The term was first coined by Adrien Sicard and Michael Lenhard in 2011.
- However, it was first described in detail by Charles Darwin in his book The Effects of Cross and Self Fertilisation in the Vegetable Kingdom (1876).
- The flowers of self-fertilizing plants are typically smaller and have little distance between reproductive organs.

The flowers of field pansies growing near Paris are 10% smaller and produce 20% less nectar than flowers growing in the same fields 20 to 30 years ago.

- **Self-pollination -** It is the process by which plants reproduce themselves.
- The behavior is contrary to the convention of angiosperms, which rely on insects to pollinate in order to reproduce, an interconnected relationship in nature.
- Plants produce nectar to attract insects, which collect nectar for food and transport pollen between plants in nature.
- The interlinked give-and-take relationship has evolved over 100 million years of coevolution.

References

1. Down To Earth – Flowering plant undoes self-pollination
2. The Guardian – Flowers evolving to self-pollinate
3. NCBI – The Selfing Syndrome

Pir Panjal Range

The Pir Panjal (South) in the Jammu sector has in recent months, witnessed more operational activity and presence of terrorists.

- It is located in the northern Indian subcontinent.
- The Pir Panjal Range is part of the Western Himalayas and is principally in the disputed Kashmir region.
- It extends from the Nilam (Kishanganga) River in the western Azad Kashmir area,

through southwestern Jammu & Kashmir union territory, to the upper Beas River in northwestern Himachal Pradesh.

Azad Kashmir is an area administered by Pakistan.

- Rising sharply to an average elevation of more than 13,000 feet, it separates the Jammu Hills to the south from the Vale of Kashmir, beyond which lie the Great Himalayas.
- **Passes -** The major passes through the range include the Pir Panjal and Banihal.
- A highway tunnel near Banihal Pass makes the Vale of Kashmir accessible to traffic from the south, even in winter.
- The mountains extending to the north of the Nilam River in Pakistan are sometimes considered part of the range.



References

1. The Indian Express – Terrorist activity has shifted to Pir Panjal Range
2. NDTV – How Pir Panjal Range became hotbed of terrorists
3. Britannica – Pir Panjal Range

Other Important News
Tansen Festival • Tansen Samaroh is a musical extravaganza celebrated near his tomb at Gwalior district, Madhya Pradesh. • The festival is organized to pay tribute to the Great Indian Musical Maestro ***Tansen***. • **Tansen** popularised and improved the ***plucked rabab (of Central Asian origin).*** • He was among the ***Navaratnas (9 jewels)*** at the court of the Mughal Emperor Jalal ud-din Akbar who gave him the title Mian, an honorific, meaning learned man.
Message in a Bottle Campaign • Message in a bottle campaign is a campaign done by ***NASA, U.S.*** • It invites people around the world to sign their names to a poem written by the ***U.S. Poet Laureate Ada Limón***. • The names will be on a microchip that will ride aboard NASA's ***Europa Clipper mission*** as it explores Jupiter's moon (Europa). • Europa is one of the largest and the 6th-closest moon to the ***Jupiter***.
Smart Lander for Investigating Moon (SLIM) • The Japan Aerospace Exploration Agency (JAXA) recently announced that its SLIM lander successfully went into lunar orbit. • This is the ***1st Moon-landing attempt*** being made by Japan and the ***5th country*** to successfully soft land on the moon. • SLIM would be the smallest and lightest spacecraft to land on the Moon. • The chosen landing site for SLIM is near a small crater named ***Shioli*** in the equatorial region of the Moon.

Thakkar Bapa (Amritlal Vithaldas Thakkar)

• Thakkar Bapa (1869 - 1951) was an Indian social worker and freedom fighter who worked to improve the lives of tribal people in Gujarat.
• Thakkar Bapa was a strong believer in universal education and the abolition of untouchability.
• He was the ***Chairman of the Excluded and Partially Excluded Areas Sub-Committee*** of the Constituent Assembly.
• In 1922, he established the ***Bhil Seva Mandal*** and in 1949, he established the "***Adim Jati Sevak Sangh***".

Jumping spider species

• 2 jumping spider species - ***Afraflacilla kerala and Afraflacilla adavathurensis*** were discovered recently from Kerala and Tamil Nadu respectively.
• Before the discovery of Afraflacilla kerala***, only 3 species*** of the Afraflacilla genus had been found in India.
• Afraflacilla is a genus of ***jumping spiders (Salticidae).***
• Most species are found in Eastern to Northern Africa and Australia, with 2 species found in Europe.

Pantoea Tagorei

• Pantoea Tagorei is a Gram-negative, short-rod, non-motile, facultatively anaerobic, potassium-solubilizing bacterium.
• The bacteria promotes plant growth and is being used in organic farming.
• It solubilizes potassium, replenishes nitrogen, and solubilizes phosphorus.
• It was discovered by a team of microbiologists from Visva Bharati University and named after ***Nobel laureate Rabindranath Tagore and his son, Rathindranath.***

FLip mutation

• JN.1 subvariant has a mutation in its spike protein, L455S, also called a “FLip” mutation.
• L455S and L455F are called “FLip” mutations because they switch the positions of amino acids F and L on the spike protein, increasing their transmissibility.
• This type of mutation is performed we use binary crossover.
• A randomly selected bit of a chromosome is flipped, as shown in the following diagram.

Polar Wolf Colony

• The Polar Wolf is considered one of the toughest prisons in Russia.
• The Polar Wolf is a high security corrective labor colony for men in the village of Kharp, Russia.
• It's also known as ***FKU IK-3***, which is part of the Federal Penitentiary Service of Russia.

Tiger population in 2023

• Wildlife Protection Society of India (WPSI) says that India lost a record ***204 tigers*** in 2023.
• **Population Declining states -** Maharashtra followed by Madhya Pradesh, Uttarakhand, Tamil Nadu, Kerala, Uttar Pradesh, Bihar, Chhattisgarh, Odisha, Andhra Pradesh and Telangana.
• **Reasons -** Natural & other causes, Poaching and Infighting.

Terms in news

- ***Basadi and Nishidis*** were a Jain shrine or temple in ***Karnataka***.
- ***'Bhattarakas'*** are the chiefs of Jain monasteries.

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