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## Prelim Bits 17-04-2022 & 18-04-2022 | UPSC Daily Current Affairs

### Bernardinelli-Bernstein Comet

*NASA's Hubble Space Telescope has confirmed that the huge Bernardinelli-Bernstein comet (C/2014 UN271) with an estimated diameter of almost 129 km is indeed the largest icy comet nucleus ever seen by astronomers.*

- The Bernardinelli-Bernstein comet was discovered by chance in 2010.
- This comet was discovered by astronomers Pedro Bernardinelli and Gary Bernstein in archival images from the Dark Energy Survey at an astronomical observatory in Chile.
- It has been travelling towards the sun for over a million years and it is believed to have originated in the Oort Cloud.
- It follows a 3-million-year-long elliptical orbit.
- It has an estimated temperature of minus 348 degrees Fahrenheit.
- Despite the chilly temperature, it is warm enough to shed carbon monoxide from its surface to produce the dusty coma around its center.
- [Coma is a cloud of dust and gas surrounding the nucleus of a comet.]
- The comet's nucleus is around 50 times larger than that of most known comets, and its mass is estimated to be around 500 trillion tonnes.
- **Measuring the size** - The comet is too far away to be accurately measured by the telescope.
- So, a computer model of the surrounding coma was made and adjusted it to fit the images taken by the Hubble Space Telescope.
- The glow of the coma was then subtracted to reveal the nucleus.

### Oort Cloud

- Oort Cloud is a distant region of the solar system that is predicted to be the source of most comets.
- The Oort Cloud is still only a theoretical concept as the comets that constitute it are too faint and distant to be directly observed.
- It was first hypothesised by Dutch astronomer Jan Oort in 1950.

### Reference

1. <https://www.thehindu.com/sci-tech/science/explained-all-we-know-about-the-berardinelli-berstein-comet-the-largest-one-ever-seen/article6531802ece?homepage=true>
2. <https://www.smithsonianmag.com/smart-news/hubble-space-telescope-spots-largest-comet-nucleus-ever-discovered-180979924/>
3. <https://www.space.com/hubble-space-telescope-largest-comet-nucleus-berardinelli-berstein>

# State Sponsor of Terrorism

Ukraine's President Volodymyr Zelenskyy has asked the US President Joe Biden to designate Russia as a "state sponsor of terrorism", which would activate the harshest suite of US sanctions against the Russian government.

- The **US Secretary of State** (minister in charge of foreign relations) has the power to designate countries that have repeatedly provided support for acts of international terrorism as "State Sponsors of Terrorism".
- **Statutes** - There are currently 3 statutes that authorize the US Secretary of State to designate a foreign government for repeatedly providing support for acts of international terrorism:

| Statute  | Purpose   |
|--|---|
| Section 620A of the Foreign Assistance Act, 1961   | It prohibits the transfer of most aid.  |
| Section 40 of the Arms Export Control Act (AECA)   | It prohibits exports, credits, guarantees, other financial assistance, and export licensing overseen by the State Department. |
| Section 1754(c) of the Export Controls Act of 2018 | It regulates exports.   |

- Of these three statutes, only the AECA identifies objectionable activities as part of the definition.
- **Sanctions** - The US can place four categories of sanctions on countries that are on this list:
  1. Restrictions on US foreign assistance;
  2. A ban on defence exports and sales;
  3. Certain controls over exports of dual use items; and
  4. Miscellaneous financial and other restrictions.
- Sanctions can also be placed on countries and persons that engage in certain trade with designated countries.
- Among other restrictions, a country's designation as a State Sponsor of Terrorism will make its citizens ineligible for some immigration benefits like automatic revalidation of visas after travel solely to contiguous territory.
- **Countries on the list** - As of now, there are four countries on the list of state sponsors of terrorism.
  - They are Syria (1979), Iran (1984), North Korea (2017) and Cuba (2021).
  - Countries can be put and taken off the list from time to time.
  - A country can be de-listed if it is deemed by the US to have reformed its behavior & returned to complying with the requirements of international law and conduct, or if it has undergone a change of leadership.

## Reference

1. <https://indianexpress.com/article/explained/russia-ukraine-war-us-state-sponsor-of-terrorism-explained-7871894/>
2. <https://www.state.gov/state-sponsors-of-terrorism/>
3. <https://www.washingtonpost.com/national-security/2022/04/15/zelensky-biden-russia-terrorism/>
4. <https://www.nafsa.org/regulatory-information/cuba-placed-back-list-state-sponsors-terrorism>

## Poison Pill

*Twitter has thrown a roadblock in front of Elon Musk's hostile takeover bid by adopting a "poison pill" of "limited-duration shareholder rights plan".*

- A poison pill is officially known as a shareholder rights plan, and it can appear in a company's charter or bylaws or exist as a contract among shareholders.
- It is a maneuver that makes a company less palatable to a potential acquirer by making it more expensive and complicated for the acquirer to buy shares of the target company above a certain threshold.
- The whole point of it is to make the offer from the board more attractive than the acquirer.
- The strategy also gives a company more time to evaluate an offer and can give the board leverage in trying to force a direct negotiation with the potential acquirer.
- **Trigger** - There are different types of poison pills, but usually, they allow certain shareholders to buy additional stock at a discounted price.
- The only shareholder blocked from making these discounted purchases is the one who triggers the poison pill.
- It is triggered when a person, usually the acquirer, hits a threshold for how many shares they own.
- If they hit that threshold, the value of their shares is suddenly diluted as other shareholders make discounted purchases.
- Investors rarely try to break through a poison pill threshold, though there are exceptions.
- **Limits** - A company could be limited by the ceiling in its charter on how many shares it is allowed to issue.
- But even if it has hit that ceiling, a company has other options to make the purchase unattractive.
- Poison pills could also be evaded if the acquirer or the shareholders sue the company for violating its fiduciary duties.

### Reference

1. <https://indianexpress.com/article/explained/explained-twitter-poison-pill-elon-musk-hostile-takeover-7871877/>
2. <https://indianexpress.com/article/explained/what-is-poison-pill-defense-twitter-elon-musk-takeover-bid-7871695/>

## Parboiled Rice

*The Centre will stop the purchase of excess quantity of parboiled rice, of which Telangana is a major producer.*

- Parboiling of rice is not a new practice, and has been followed in India since ancient times.
- It refers to partially boiling the rice at the paddy stage, before milling.
- However, there is no specific definition of parboiled rice of the Food Corporation of India or the Food Ministry.
- **Processes** - All processes for parboiling rice generally involve three stages - soaking, steaming and drying.
- After passing through these stages, the paddy goes for milling.
- The more common method is to soak the paddy in hot water for 8 hours. Then the paddy is boiled and sun-dried.
- There are also methods where the paddy is soaked in hot water for 3 hours, steamed for 20

minutes and then dried in the shade.

- The Paddy Processing Research Centre (PPRC), Thanjavur follows a method known as the chromate soaking process.
- It uses chromate, a family of salt in which the anion contains both chromium and oxygen, which removes the odour from the wet rice.
- **Rice variety used** - Generally, all varieties can be processed into parboiled rice, but it is ideal to use long slender varieties to prevent breakage during milling.
- However, aromatic varieties should not be parboiled as the process can make it can lose its aroma.
- **Benefits** - Parboiling makes rice tougher. This reduces the chances of the rice kernel breaking during milling.
- Parboiling also increases the nutrient value of the rice.
- Parboiled rice has a higher resistance to insects and fungi.
- **Disadvantages** - The rice becomes darker and may smell unpleasant due to prolonged soaking.
- Besides, setting up a parboiling rice milling unit requires a higher investment than a raw rice milling unit.

## Reference

1. <https://indianexpress.com/article/explained/what-is-parboiled-rice-and-why-centre-wants-to-stop-purchasing-it-7873759/>
2. <https://economictimes.indiatimes.com/news/economy/agriculture/centre-follows-uniform-procurement-policy-cannot-take-surplus-parboiled-rice-food-secretary/articleshow/90784388.cms>

## Coastal Economic Zones

*Under the National Perspective Plan of the Sagarmala Programme, 14 Coastal Economic Zones (CEZ) were envisaged including 3 in the state of Tamil Nadu.*

Ministry of Ports, Shipping and Waterways is exploring the possibility of developing a CEZ, on a pilot basis for enabling Port Led Industrialization and incentivize employment generation, with land available with the Major Ports.

- Coastal Economic Zone (CEZ) refers to designated coastal areas with special economic regulations such as tax incentives and lower tariffs to make it friendly for foreign direct investment.
- It is similar to Special Economic Zone (SEZ) but focuses on coastal development projects such as
  1. Development of port-proximate industrial clusters,
  2. Promoting port-led development,
  3. Reduction of logistics cost and time for movement of goods.
- It consists of a group of coastal districts or districts with strong linkage to ports in the region to utilize the synergies with planned industrial corridor projects.
- CEZ will be developed as part of the plan for developing 14 such industrial clusters to promote manufacturing and generate jobs.
- Port-led industrialization through the CEZ under Sagarmala Programme are expected to provide impetus to the "Make in India" initiative of the Government of India.

## Reference

1. <https://pib.gov.in/PressReleasePage.aspx?PRID=1806133>
2. <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1519885>



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