

THE PENAL CODE REFORM: ERASING MACAULAY'S MARK

Context

- On the last day of the Monsoon Session, the Home Minister introduced three Bills in Lok Sabha to overhaul the country's criminal justice system.
- It is a paradox of India's criminal justice system, even today, bears the indelible marks of Lord Thomas Babington Macaulay or colonial legacy in other words. There are reasons as to why these new bills are important.

Key Changes Introduced in the New Bills

- **Replacement of the British-Era Laws**
- The bill has made changes to the Indian Penal Code (IPC), Code of Criminal Procedure (CrPC) and the Indian Evidence Act, with the aim of transforming criminal justice system.
- The colonial-era laws will be replaced by legislation with an Indian ethos:
 - The Bharatiya Nyaya Sanhita, 2023, to replace the IPC;
 - Bharatiya Nagarik Suraksha Sanhita, 2023, for CrPC; and
 - Bharatiya Sakshya Bill, 2023, for the Indian Evidence Act.
- **Removal of IPC Section 377**
 - Bharatiya Nyaya Sanhita (BNS) 2023 does not contain IPC Section 377 (or an equivalent section), which was read down by the Supreme Court in 2018.
 - **Section 377:** Whoever voluntarily has carnal intercourse against the order of nature with any man, woman or animal shall be punished.
- **Reinventing Sedition law (Section 124A of IPC)**
 - The repeal of the sedition law points to a welcome shift in the balance struck between individual liberty and national security.
 - But the proposed Sanhita contains a provision that penalises endangering sovereignty, unity, and integrity of India.
 - Without calling it sedition, it expands its definition, including aiding through financial means and subversive activities, and encouraging feelings of separatist activities.

- **Introduction of Reformative Form of Justice:** The insertion of community service as an alternate form of punishment could prevent more undertrials languishing in jails.
- **Address the Technological Advancement**
 - The Bharatiya Sakshya Bill (BSB) 2023 will allow witnesses, accused, experts and victims to appear through electronic means.
 - It also allows electronic evidence to have the same legal value as physical documents and extends the scope of secondary evidence to include various forms of electronic and mechanical copies.
 - New bills also include **recognition of murder by a mob on ethnic, caste and communal lines.**

Conclusion

- India's legal fabric will no longer dance to the whims of colonial times.
- By adopting the Bharatiya Nyaya Sanhita and related reforms, **India is not just changing the numbers, it is reclaiming its identity.**

STEREO SPACECRAFT

Nasa's Solar Terrestrial Relations Observatory (STEREO-A) spacecraft made its first Earth flyby nearly 17 years after its launch.



About STEREO spacecraft:

- The pair of STEREO (Solar Terrestrial Relations Observatory) spacecraft were launched on October 25, 2006, from Florida's Cape Canaveral Air Force Station.
- The two spacecraft were situated in Sun's orbit, STEREO-A ("Ahead") and STEREO-B ("Behind").
- The dual-spacecraft mission accomplished its major goal by delivering the **first-ever stereoscopic view of our star.**
- On February 6, 2011, another significant milestone was achieved as both STEREO-A and -B reached a remarkable **180-degree separation in their orbits, which gave us the full sphere image of the Sun.**

- **Significance of STEREO-A**

- It will synthesize its views with those from Nasa's and the European Space Agency's Solar and Heliospheric Observatory (SOHO) and Nasa's Solar Dynamics Observatory (SDO).
- Its distance from Earth changes throughout the flyby, it will optimize its stereo vision for different-sized solar features at different times, akin to adjusting the focus on a several million-mile-wide telescope.
- It will allow scientists to understand how a coronal mass ejection's (CME) magnetic field evolves on its way to Earth.

PRADHAN MANTRI UCHCHATAR SHIKSHA ABHIYAN

14 States and Union Territories which are yet to sign a crucial Memorandum of Understanding (MoU) with the Union Education Ministry, which mandates the implementation of the Pradhan Mantri Uchcharat Shiksha Abhiyan (PM-USHA) .



About Pradhan Mantri Uchcharat Shiksha Abhiyan:

- In the light of the National Education Policy, Rashtriya Uchcharat Shiksha Abhiyan (RUSA) scheme has been launched as Pradhan Mantri Uchcharat Shiksha Abhiyan (PM-USHA).
- It covers government and government-aided institutions of the States and UTs.
- It is a Centrally Sponsored Scheme (CSS).
- PM-USHA would be focusing on the following:
 - **Equity, Access, and Inclusion:** The scheme focuses on equity initiatives and gender inclusion by providing adequate opportunities to underprivileged groups, and it promotes the inclusion of women, minorities, SCs/STs/OBCs, and specially-abled people in higher education, which will help to increase the GER
 - **Developing Quality Teaching & Learning processes:** It would provide the facilities to the institution for upgrading the physical and digital infrastructure and also for the conversion of single-stream higher education institutions (HEIs) into multiple streams institutions

- **Accreditation of Non-Accredited Institutions & Improving Accreditation:** Accreditation pushes institutions to meet and maintain higher standards in education, in turn, increases trust and confidence in them among the public and boosts accountability
 - **ICT-based Digital Infrastructure:** To ensure greater access to education, there is the significant importance of technology in bridging the language barrier between teachers and students, creating digital libraries, popularizing language learning as well as introducing the Open distance learning (ODL) programs.
 - **Enhancing Employability through Multidisciplinarity :** Collaboration between industry and academia is key to catalysing innovation and growth in career building. PM-USHA will encourage the HEIs to get linked with the Industry and the Market to strengthen skills, innovations, and employability
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ADITYA-L1 MISSION

India's first solar mission, Aditya-L1, has recently reached the spaceport in Sriharikota.



About Aditya-L1 Mission:

- Aditya L1 is the **first space-based Indian mission to study the Sun.**
- It will be launched by the PSLV-XL launch vehicle.
- The spacecraft shall be placed in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system, which is about 1.5 million km from the Earth.
- A satellite placed in the halo orbit around the L1 point has the **major advantage of continuously viewing the Sun without any occultation/eclipses.**
- This will provide a **greater advantage in observing solar activities** and their effect on space weather **in real-time.**
- The spacecraft carries seven payloads to observe the photosphere, chromosphere and the **outermost layers of the Sun (the corona)** using electromagnetic and particle and magnetic field detectors.
- Using the special vantage point L1, four payloads directly view the Sun and the remaining three payloads carry out in-situ studies of particles and fields at the Lagrange point L1,

thus providing important scientific studies of the propagator effect of solar dynamics in the interplanetary medium.

- The **other objectives** of Aditya L1 mission will be to **understand the drivers for space weather** (origin, composition and dynamics of solar wind), **and identify the sequence of processes that occur at multiple layers** (chromosphere, base and extended corona) which eventually leads to solar eruptive events.

What are Lagrangian points?

- Lagrangian points, also known as **Lagrange points or liberation points**, are specific **locations in space where the gravitational forces of two large bodies**, such as a planet and its moon or a planet and the Sun, **produce enhanced regions of gravitational equilibrium**.
- **In these points, the gravitational pull from the two bodies creates a stable or quasi-stable region where a third, smaller object can maintain a relatively constant position** relative to the larger bodies.
- There are **five primary Lagrangian points**, labelled **L1 through L5**, in a Sun-Earth system.
- **L1 (Lagrange Point 1):**
 - It was **found by mathematician Joseph Louis Lagrange**.
 - It is located about **1.5 million kilometres inside Earth's orbit, between the Sun and the Earth**.
 - The L1 point of the Earth-Sun system **gives a clear view of the sun all the time, without any occultation/ eclipses**.
 - **Once the Aditya L1 mission reaches the L1 Lagrange point, it will be injected to a halo orbit**. A halo orbit is a **type of orbit that allows the satellite to remain in a stable position** between the Earth and the Sun.

WHAT ARE MICROPLASTICS?



A team of scientists in China recently found microplastics in the human heart for the first time.

About Microplastics:

- Microplastics are **tiny bits of various types of plastic found in the environment.**
- They are a **result of the fragmentation and degradation of larger plastic items, as well as the direct release of tiny plastic particles**, often intentionally added to consumer products like cosmetics and cleaning agents.
- The **name is used to differentiate them from “macroplastics”** such as bottles and bags made of plastic.
- There is **no universal agreement on the size that fits this bill** — the S. NOAA (National Oceanic and Atmospheric Administration) and the **European Chemical Agency define microplastic as less than 5mm in length.**

What are the types of microplastics?

- There are two categories of microplastics: **primary and secondary.**
- **Primary microplastics:**
 - They are **tiny particles designed for commercial use**, such as cosmetics, as well as microfibers shed from clothing and other textiles, such as fishing nets.
 - **They enter the environment directly** through any of various channels—for **example, product use, unintentional loss from spills during manufacturing or transport, or abrasion during washing.**
- **Secondary microplastics:**
 - They are **particles that result from the breakdown of larger plastic items**, such as water bottles.
 - This typically **happens when larger plastics undergo weathering**, through exposure to, for example, wave action, wind abrasion, and ultraviolet radiation from sunlight.
- **Environmental Impact:**
 - Microplastics are **not biodegradable.**
 - Thus, once in the environment, primary and secondary microplastics **accumulate and persist.**
 - They can be **ingested by marine organisms**, leading to **potential harm to aquatic life and bioaccumulation along the food chain.**

- They can also carry toxic chemicals and pollutants, posing additional risks to organisms and ecosystems.
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UREA AS A FERTILISER: HOW TO MAKE IT MORE EFFICIENT AND WHY THAT'S NEEDED

Why in News?

- Recently, the PM of India officially launched 'Urea Gold' fertiliser - **basically urea fortified with sulphur**, developed by the state-owned Rashtriya Chemicals and Fertilizers Ltd (RCF).
- Urea is a chemical nitrogen fertiliser, white in colour, which artificially provides nitrogen, a major nutrient required by plants.

Consumption of Fertilisers in India:

- Like humans, **crops need nutrients** - primary (N, P, K), secondary (S, calcium, magnesium) and micro (iron, zinc, copper, manganese, boron, molybdenum) - for plant growth and grain yield.
- **Fertilisers** are essentially food for crops, which provides essential **nutrients** to the crops.
- High doses of these fertilisers produced more grains and led to the success of the **Green Revolution** in the 960s.
- However, crop yield response to fertiliser use has more than halved over time. **For example**, 1 kg of NPK nutrients yielded 12.1 kg of cereal grains in India during the 1960s, 5 kg during the 2010s.
- The underlying reason has been the **disproportionate application of N by farmers**.

What is Urea Gold?

- **Normal urea** contains 46% of a single plant nutrient: Nitrogen or N. **Urea Gold** has 37% N plus 17% sulphur (S).
- It aims at two things. **The first is to deliver S along with N.**
- Indian soils are deficient in S, which oilseeds and pulses - the country is significantly import-dependent in both - particularly require.

- **The second is to improve the NUE of urea.** Coating of S over urea ensures a more gradual release of N.
 - By prolonging the urea action, **the plants stay greener for a longer time** - reducing the frequency of application and use of Urea, say, only two bags (against three), for an acre of paddy or wheat.
- **RCF is yet to commercially introduce Urea Gold** or reveal any pricing details.

Main Hurdle in the Fortification of Urea and Way Ahead:

- **That has to do with pricing.** For example, the MRP of Urea Gold is expected to be fixed at Rs 400-500 per 40-kg bag (against around Rs 254 for a 45-kg bag of ordinary neem-coated urea).
- **The government can probably set free the MRPs for all coated fertilisers.**
 - Since the regular urea or DAP will continue to be sold at heavily subsidised rates, companies cannot charge too much of a premium on their fortified fertiliser products.
- **The coating should be carried out at the factory itself,** which will guarantee even more uniform distribution of micronutrients and save the farmer the hassles of mixing.

WHAT IS CARBONLITE METRO TRAVEL?

The Delhi Metro Rail Corporation (DMRC) recently unveiled a pioneering initiative called CarbonLite Metro Travel to educate passengers about their significant contribution towards reducing carbon emissions by choosing metro trains.



About CarbonLite Metro Travel:

- It is a new initiative of the DMRC to help people understand their contribution to reducing CO₂ emissions by opting for metro rail services.
- With this initiative, **daily commuters will now be able to understand and learn about the average amount of Carbon Dioxide (CO₂) emissions they are decreasing** with their simple step of selecting the metro as their means of transportation.
- **The amount of CO₂ will be calculated based on a comparison to road-based motor vehicles.**



CROSS & CLIMB ROHTAK



- It also aims to persuade commuters to choose an environmentally friendly method of transportation over motorised alternatives, thereby supporting a cleaner and more ecologically balanced environment.
- The initiative is in line with the Government of India's Mission Lifestyle for Environment (LiFE).

Who can avail of this feature?

- People travelling with QR code-based tickets will be able to avail of this facility.
 - Information about the decrease in CO2 emissions caused by metro travel will be prominently displayed on both mobile QR code tickets and physical tickets.
 - Supported by comprehensive research conducted by The Energy and Resources Institute (TERI), Delhi, the initiative underscores that each kilometre travelled by metro train instead of road vehicles results in a noteworthy reduction of 32.38 gram of CO2 emissions.
 - The CO2 savings will be displayed and accumulated in the user's DMRC mobile app for all journeys undertaken by the passenger, further enhancing his/her feel-good factor.
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