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EDITORIALs
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> ➢ Generally, **IUI may be the only treatment needed.** But fertility specialists may suggest IVF if IUI does not work.

Dr Munjal says the two treatments have some things in common. "**Before fertilization**, **both IUI and IVF may include fertility drugs** to increase success rates. Both the treatments include **processes to isolate the highest quality sperm** from the provided samples for use in the fertilization process."

"For undergoing any treatment or procedure, it is recommended that a specialist is consulted. Every case, **every patient and every situation is unique.** We can never generalise. A doctor will help in determining the **best course to achieve pregnancy**," the doctor concludes.

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- **Manpower shortage in the police department:** The police-population ratio, currently 192 policemen per lakh population, is less than what is recommended by UN i.e. 222 policemen per lakh population.
  - ➤ It results in the overburdening of work not only reduces the effectiveness and efficiency of the police personnel but also leads to psychological distress which contributes to various crimes committed by the policemen.

Challenges in implementing Police Reforms

- **Problem in restoration of the culture of law:** The challenge of India is to restore the culture of rule of law, and make police and justice accessible, effective and credible.
- **Trust deficit in police:** The people have little or no faith left in the police system and the restoration of that faith is an uphill task.
- **Constitutional Limitations of Central Government:** Police being a State subject in the seventh schedule to the Constitution of India, it is primarily the State Governments who have to implement the various police reforms measures.
  - ➤ The Centre has been making consistent efforts to persuade the States from time to time to bring the requisite reforms in the Police administration to meet the expectations of the people.
- **Politicization of Police:** The pressure from politicians is the biggest hindrance in crime investigation such as premature transfers of police investigating officers.

Measures to be adopted for Police Reforms

- **Uniform law based on Model Police Act, 2006:** The Government of India should have enacted a law based on this Model Police Act with such changes as it may have found necessary, and the states should have mutatis mutandis adopted it.
  - ➤ It would have ensured a uniform police structure across the country.
- **Cooperative Federalism:** The best option would be for the central and state governments to respect each other's turf in a spirit of cooperative federalism.

➢ It would be necessary to have a fresh look at the distribution of powers in the seventh schedule of the Constitution.

• **Creation of independent complaint authority:** Both the Second Administrative Reform Commission and the Supreme Court have accepted the need for having an independent complaint authority to inquire into the cases of police misconduct.

• **Functional autonomy:** While recognizing that the police is an agency of the State and therefore accountable to the elected political executive, the Committee has specifically outlined the role of Superintendence of the State Government over the police.

➢ The Model Police Act suggested creation of a State Police Board, Merit-based selection and appointment of the Director General of Police, ensuring security of tenures, setting up of Establishment Committees.

• **Constitute a Police Establishment Board:** It will decide postings, transfers and promotions for officers below the rank of Deputy Superintendent of Police, and make recommendations to the state government for officers of higher ranks.

• **Restore the autonomy of the DGP heading the state police:** It will begin with the defining of the process of DGP's selection and appointment itself.

➢ The Centre must actively discharge its constitutional duty of reprimanding a state for serious failures in the sphere of implementation of law and maintenance of order.

Road ahead

❖ There is **need to act with conviction and without further delay upon remedial measures** to prevent interference with, and misuse of the police by illegal or improper orders or pressure from political, executive or other extraneous sources.

❖ The police must be **accountable as an organization** and officers must be accountable as individuals for their actions.

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PARLIAMENTARY COMMITTEES MUST NOT BE HIJACKED BY POLITICS

The recent goings-on in the **standing committee on information technology has once again drawn attention** to the system of standing committees, which is one of the major innovations of our parliamentary system of governance.

Parliamentary Committees

- The Parliamentary Committees are of two kinds – **Standing Committees and ad hoc Committees**.

  - The former are **elected or appointed every year or periodically** and their work goes on, more or less, on a continuous basis.

  - The latter are **appointed on an ad hoc basis** as need arises and they cease to exist as soon as they complete the task assigned to them.

- **Standing Committees:** Among the Standing Committees, the three Financial Committees (Committees on Estimates, Public Accounts and Public Undertakings) constitute a distinct group as they keep an unremitting vigil over Government expenditure and performance.

- The functions of these Committees are:

  - To consider the **Demands for Grants of various Ministries/Departments** of Government of India and make reports to the Houses;

  - To examine such **Bills as are referred to the Committee by the Chairman, Rajya Sabha or the Speaker, Lok Sabha**, as the case may be, and make reports thereon;

  - To consider **Annual Reports of ministries/departments** and make reports thereon; and

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- **Integral part of Parliament's role in the debate:** The standing committees provide a platform for MPs to track government expenditure, scrutinize policies and bills and seek expert advice.

- **Huge reservoirs of information:** Indian parliamentary committees are a huge reservoirs of information, which are made available to MPs in order to enlighten themselves, and contribute ideas to strengthen the parliamentary system and improve governance.

Challenges faced by Parliamentary Committees

- **Mandatory to work behind closed doors:** It is a pity that in this day and age of complete transparency, the committees are forced to function confidentially.

  ➢ It is one of the main reasons why their good work is not known outside Parliament.

- **Declining trend in referring bills to Committees:** In the 15th LS, 71% of the Bills introduced were referred to Committees for examination, as compared to 27% in the 16th Lok Sabha.

  ➢ It leads to some Bills being passed without the advantage of a Committee scrutinizing its technical details.

- **Time at its disposal is limited:** The functions of Parliament are not only varied in nature, but considerable in volume.

  ➢ It cannot make very detailed scrutiny of all legislative and other matters that come up before it.

- **Reduced working hours of committees:** The standing committees under the first NDA government met for 145.5 hours less than the ones under the preceding United Progressive Alliance government.

- **Diminished say in legislative matters:** Ordinances are passed when Parliament is not in session and the government is required to take immediate action.

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➢ No ordinance is allowed to be in force for more than six months without parliamentary approval.

- **Partisanship curtailing deliberation:** The political partisanship during the proceedings of committees have reduced its deliberation over important issues such as tracking the expenditure of ministries and, consequently, its ability to hold the government to account.

  ➢ The committee on home affairs saw political partisanship during its meeting on Kashmir post abrogation of Article 370.

  ➢ The restrictions in Jammu and Kashmir were ordered on August 5, 2019, and the bifurcation of the state into two Union Territories was officiated on October 30, 2019.

Measures to be adopted for Parliamentary Committees

- **Power to ask for bills related to its area of operation:** It should be given to parliamentary committee so that the issues regarding policy can be discussed in a holistic approach.

- **Increase in number of meetings of committees:** If the chairman of the Rajya Sabha and the Speaker of the Lok Sabha meet the chairmen of committees at least once in two months to discuss issues related to the committees, there will be a significant improvement in their functioning.

- **Longer tenure for members:** The committee system allows a smaller group of legislators to develop technical expertise on a particular subject and ensure better deliberation.

  ➢ In the present format, the members are nominated to a Standing Committee for one year.

- **Research Support:** To equip members to gain an in-depth understanding of issues and finally give sound and nuanced recommendations, it is important that quality research is made available to them.

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WHAT PLUMES ON ENCELADUS TELL US ABOUT POSSIBILITY OF LIFE ON SATURN'S MOON?

NASA's Cassini spacecraft has detected an **unusually high concentration of methane**, along **with carbon dioxide and dihydrogen**, in the **moons of Saturn** by flying through **their plumes.** The spacecraft has found that **Titan has methane** in its **atmosphere** and **Enceladus has a liquid ocean with erupting plumes of gas and water.**

An international research team has used **new statistical methods** to understand if **methanogenesis or methane production by microbes** could explain the **molecular hydrogen and methane.** The models combined geochemistry and microbial ecology to decode what possible processes could explain these observations.

A paper published in **Nature Astronomy** concluded that there may be unknown **methane-producing processes on Enceladus** that await discovery.

Most of the methane on Earth has a biological origin. Microorganisms called methanogens are capable of **generating methane as a metabolic byproduct.** They do not require oxygen to live and are widely distributed in nature. They are found in **swamps**, **dead organic matter**, and **even in the human gut.** They are known to survive in **high temperatures** and simulation studies have shown that **they can live in Martian conditions.** Methanogens have been widely studied to understand if they can be a **contributor to global warming.**

Obviously, we are not concluding that **life exists in Enceladus' ocean**," said Régis Ferrière, one of the lead authors, in a release. "Rather, we wanted **to understand how likely it would be that Enceladus' hydrothermal vents** could be **habitable to Earth-like microorganisms.** Very likely, the Cassini data tell us, according to our models.

And **biological methanogenesis appears to be compatible with the data.** He

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NITI AAYOG AND RMI RELEASE A REPORT ON POWER DISTRIBUTION SECTOR

Recently, the NITI Aayog has released a report titled **'Turning Around the Power Distribution Sector'** that presents reform pathways.

Status of Power Distribution Companies

- **Operational Performance:** The continuous improvement in billing and collection efficiency has gradually helped in reducing Aggregate Technical and Commercial (AT&C) losses across the country.

  ➢ The overall AT&C loss has come down to 22 percent but when compared at the global level, losses are still high, and much is to be done.

  ➢ In 2018–19, distribution utilities incurred a total expenditure of ₹ 712,610 crore against a total revenue of ₹ 663,093 crore.

- **Subsidy Dependence:** Apart from straining a state's finances, continued reliance on subsidies disincentivises DISCOMS from making serious structural improvements.

- **Role of Taxes:** The discoms have little control over bulk supply tariff and are engaged in long-term PPAs with generating companies, these taxes get transferred via tariffs to end consumers.

Concerns associated with Power Distribution Sector

- **Cost optimization:** It continues to be difficult to achieve due to factors such as legacy Power Purchase Agreements (PPAs) and poor investment in distribution infrastructure.

- **Liquidity stresses of DISCOMS:** It is added due to delays in receiving subsidy reimbursements from the government because the discoms in the north-eastern states and agrarian states are especially dependent on government subsidies.

- **Outstanding Dues:** The systemic shortcomings ultimately result in a high level of debt and payments owed to generation companies (gencos) because the overdue amount to gencos stood at ₹67,917 crore in March 2021.

- **Electricity does not come under GST:** The states charge electricity duty based on consumption. This may differ from state to state and can go up to 20 percent in some cases.

  ➢ It may be noted that while coal is under GST, the end product, electricity, is not which prevents utilities from accessing the input tax credit mechanism, leading to a cascading effect where the taxes that are levied on utilities are added to the cost of power.

- **Fuel Security Concerns:** The thermal capacity addition is plagued by the growing fuel availability concerns faced by the Industry.

  ➢ The coal supplies by CIL is restricted to around 65% of actual coal requirement by coal based thermal plants, leading to increased dependence on imported coal with the cascading result of high power generation costs.

Measures for reforming Power Distribution Sector

- **Upgrading Distribution Infrastructure:** Many loss-making discoms are unable to invest in the upgradation and maintenance of their equipment due to lack of resources.

- **Metering and Billing:** Smart and prepaid meters can be an important component of the solution to billing and collection challenges.

  ➢ Smart meters increase the efficiency of the billing and collection process by reducing human intervention and consequently empowering both consumers and discoms.

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- **Improving Collection Efficiency:** The Discoms require the support of government machinery, in the form of police and courts, to settle legal and administrative disputes.

- **Renewable Purchase Obligations (RPOs):** They are a policy instrument to ensure the uptake of renewable energy which requires discoms, energy producers and certain consumers to obtain a share of their electricity from renewable sources.

- **Decentralised Renewable Energy:** There is a renewed interest in decentralized renewable energy (DRE) systems today due to the sharp fall in prices, the imperative of decarbonization, the continuing shortage or unreliability of electricity in many parts of the country, and the desire for greater resilience.

Recommendations for revamping Power Distribution Sector

Structural Reforms

- **Greater autonomy for state-owned discoms:** For a state-owned utility to succeed, there should be a clear separation between utility and state and it should have operational and financial autonomy.

  ➢ The performance of state-owned discoms is also determined by the ability of the respective SERC to revise tariff frequently and adequately.

- **Distribution franchisee:** There can be a variety of distribution franchisees, from models that are essentially outsourcing revenue collection to taking care of all distribution functions.

- **Increasing competition:** Discoms have a monopoly in their area of functioning and delicensing distribution can introduce competition and enable retail choice for customers.

- **Vertical unbundling:** Even where there has been de jure unbundling of

(Page **3** of **5**)

❖ The history of power sector reforms tells us that **India is too large and diverse for a one-size-fits-all approach** and importing external expertise, structural frameworks, and new technology will be required.

❖ **A flexible and home-grown approach to reform**, which is supported by states and the Centre, and allows for 'learning by doing', will be instrumental in determining the success of reforms.

❖ The need for a **low-carbon and climate-resilient future**, makes it crucial for the Indian electricity distribution sector to achieve operational efficiency, profitability, and a readiness for emerging and future demand as well as technological changes.

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an Israeli surveillance firm. Indian ministers, government officials and opposition leaders also figure in the list.

- In India, several opposition leaders including Rahul Gandhi were on the leaked potential targets' list.

- Smartphones of Politicians, Journalists were hacked for gathering confidential information.

- This is the first time in the history of this country that all pillars of our democracy — judiciary, parliamentarians, media, executives and ministers — have been spied upon.

- The Indian government has denied any wrong doing or carrying out any unauthorized surveillance. However, the government has not confirmed or denied whether it has purchased or deployed Pegasus spyware.

Legislations on Surveillance

The laws authorizing interception and monitoring of communications are:

- Section 92 of the Criminal Procedure Code (CrPC)

- Rule 419A of the Telegraph Rules, and

- The rules under Sections 69 and 69B of the IT Act

- **Watergate scandal**

- The Watergate scandal was a political scandal that occurred in the United States in the 1970s as a result of the June 17, 1972, break-in at the Democratic National Committee headquarters at the Watergate office complex in Washington, D.C., and the Nixon administration's attempted cover-up of its involvement. The scandal eventually led to the resignation of Richard Nixon, the President of the United States, on August 9, 1974 — the only resignation of a U.S. President to date. The scandal also resulted in the indictment, trial, conviction, and incarceration of forty-three persons, dozens

1. The restriction must be by law;

2. It must be necessary (only if other means are not available) and proportionate (only as much as needed);

3. It must promote a legitimate state interest (e.g., national security).

- The judgement held that privacy concerns in this day and age of technology can arise from both the state as well as non-state entities. As such, a claim of violation of privacy lies against both of them.

- The Court also held that informational privacy in the age of the internet is not an absolute right and when an individual exercises his right to control over his data, it may lead to the violation of his privacy to a considerable extent.

- It was also laid down that the ambit of Article 21 is ever-expanding due to the agreement over the years among the Supreme Court judges. A plethora of rights have been added to Article 21 as a result.

- The court stated that Right to Privacy is an inherent and integral part of Part III of the Constitution that guarantees fundamental rights. The conflict in this area mainly arises between an individual's right to privacy and the legitimate aim of the government to implement its policies. Thus, we need to maintain a balance while doing the same.

Past recommendations regarding Surveillance

- In 2010, then Vice-President called for a legislative basis for India's agencies and the creation of a standing committee of Parliament on intelligence to ensure that they remain accountable and respectful of civil liberties.

- The Cabinet Secretary in a note on surveillance in 2011 held that the Central Board of Direct Taxes having interception powers was a

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- **Leads to Self-Censorship**: The perceived danger, founded on reasonable suspicion that surveillance may happen, itself impacts their ability to express, receive and discuss such ideas.

- **Dangers of Mass Surveillance**: As spyware becomes more affordable and interception becomes more efficient, there will no longer be a need to target specific individuals. Everyone will be potentially subject to state-sponsored mass surveillance.

- **Weak Legislative Protection**: The proposed legislation related to the personal data protection of Indian citizens fails to consider surveillance while also providing wide exemptions to government authorities.

Initiatives taken in India:

- **Cyber Surakshit Bharat Initiative:** It was launched in 2018 with an aim to spread awareness about cybercrime and building capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.

- **National Cyber security Coordination Centre (NCCC):** In 2017, the NCCC was developed to scan internet traffic and communication metadata (which are little snippets of information hidden inside each communication) coming into the country to detect real-time cyber threats.

- **Cyber Swachhta Kendra:** In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.

- **Indian Cyber Crime Coordination Centre (I4C):** I4C was recently inaugurated by the government.

  - National Cyber Crime Reporting Portal has also been launched pan India.

- **Computer Emergency Response Team – India (CERT-IN):** It is the nodal agency which deals with cybersecurity threats like hacking and phishing.

Road ahead

The need for **judicial oversight over surveillance systems** in general, and judicial investigation into the Pegasus hacking in particular, is essential. Only the judiciary can be competent to decide whether specific instances of surveillance are proportionate, whether less onerous alternatives are available, and to balance the necessity of the government's Security objectives with the rights of the impacted individuals.

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WHERE IS THE EDGE OF SPACE?

On July 11, British businessman **Richard Branson beat rival Jeff Bezos** to reach the **edge of space**, giving **space tourism an official kickstart.** But experts and space enthusiasts are **in doubt whether the height to which he travelled** can be **termed 'space'.**

The **most widely accepted boundary of space** is known as the **Kármán line**, **100km above mean sea level.** But the **United States uses 80km as the cutoff point. Branson's Virgin Galactic flight** reached a **height of 86km** while **Jeff Bezos' Blue Origin flight is expected to go about 106km high.**

The **Kármán line** has been **compared to international waters**, as there are **no national boundaries and human laws in force beyond the line.** It was named after aerospace pioneer **Theodore von Kármán**, who wrote in his autobiography: "This is certainly a physical boundary, where **aerodynamics stops and astronautics begins**...**Below this line**, **space belongs to each country**. Above this level, **there would be free space.**"

The **1967 Outer Space Treaty** says that **space should be accessible to all countries** and **can be freely and scientifically investigated.** Defining a legal boundary of what and where space is can help avoid disputes and keep track of space activities and human space travel.

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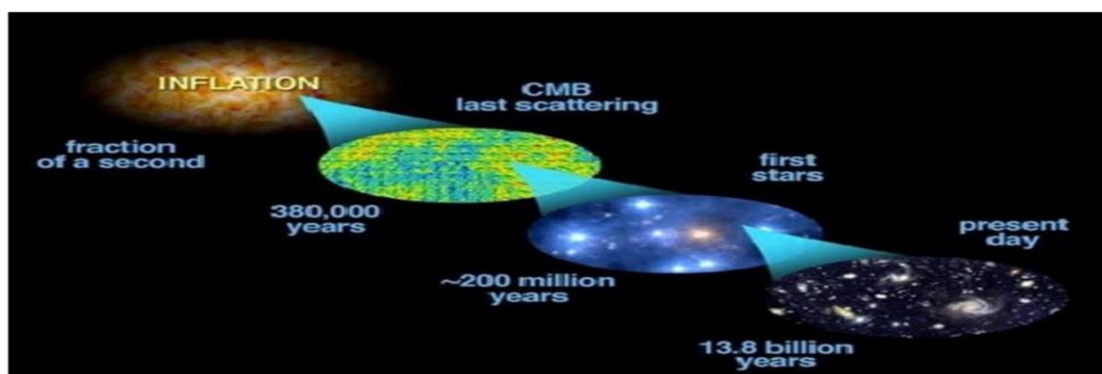
The **Earth's atmosphere has been divided into various layers**, with the **troposphere starting at the Earth's surface** and **extending about 14.5 km high**, **stratosphere extending to 50 km**, **mesosphere to 85 km**, **thermosphere to 600 kilometers** and **exosphere to 10,000 km.**

Dr McDowell noted that the **chemical composition of the atmosphere was largely constant up to the mesopause**, or the **boundary between the mesosphere and the thermosphere.**

"From a physical point of view, it is therefore reasonable to think of the atmosphere proper as including the **troposphere and stratosphere** and (with some qualification) the mesosphere, and **identifying the thermosphere and exosphere** with the common idea of 'outer space'," added the paper.

Terry Virts, a former commander of the **International Space Station** who has spent **more than 213 days in orbit**, in an interview to **National Geographic** said there's a big difference between **riding along on a five-minute suborbital flight** and **performing a six-month orbital mission**, but when it comes down to it, folks on both types of trips have earned the "**astronaut**" title.

NASA astronaut Mike Massimino, who helped **repair the Hubble Space Telescope**, told **National Geographic** that there is an important distinction between being selected as a NASA astronaut — "the training, the struggle, the rejections, all of that" — and being a paying customer. But he is also completely on board with space tourists earning the title.

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ZIKA VIRUS CASE

Kerala is on alert after detecting its **first ever positive case of the Zika virus.** State Health Minister Veena George said the infection was reported in a 24-year-old pregnant woman, a native of Parassala, in Thiruvananthapuram. There are **at least 13 other suspected cases.** All 14 samples have been sent to the **National Institute of Virology** in Pune for further testing.

Zika is a viral infection spread **by mosquitoes.** The vector is the **Aedes aegypti mosquito**, which also **spreads dengue and chikungunya.** Additionally, infected people can **transmit Zika sexually. First identified in Uganda in 1947 in monkeys**, **Zika was detected in humans five years later.** Sporadic cases have been reported throughout the **world since the 1960s**, but the **first outbreak happened only in 2007 in the Island of Yap in the Pacific.** In 2015, a major outbreak in Brazil led to the revelation that **Zika can be associated with microcephaly**, a condition in which **babies are born with small and underdeveloped brains.**

Fears around Zika primarily involve **microcephaly**, especially when pregnant women are infected. Generally, the **virus is not considered dangerous to anyone other than pregnant women.** Some countries that have had a **Zika outbreak**, including Brazil, reported a steep increase in **Guillain-Barré syndrome** — a **neurological disorder that could lead to paralysis and death**, according to the World Health Organization (WHO).

In 2017, following a study on Brazil's confirmed cases the **US National Institutes of Health study** estimated the **fatality rate at 8.3 per cent.**

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CRIMINALIZATION IN POLITICS

Recently, the Supreme Court has imposed fine on eight political parties for **committing contempt of court by flouting the directions** in its February 2020 judgment for publication of the **criminal antecedents of candidates**.

Causes

- **Preference given to criminal candidates due to popularity:** The political parties owing to the sentiments of public in a democratic country have time and again chosen candidates who are popular regardless of the criminal antecedents.

- **Unholy nexus between the politicians and bureaucracy:** it is an undesirable and dangerous relationship between bureaucracy and political leaders which opened the doors of criminalization of politics.

- **Social divisions:** Caste and religion both are responsible for the criminalization of politics.

  - In bureaucracy there are certain procedures and rules for the promotion but caste and religion both interfere in this process.

- **Concept of Vote Bank:** The political parties and individual have astronomical expenditure for vote buying and other illegitimate purposes through which these people's are so called goondas.

  - A politician's link with then constituency provides the congenial climate to political crime.

- **Corruption:** It plays very important role in criminalization of politics because a corrupt political member can do anything with their powers.

- **Lack of governance:** In India the distinctive thing is left politics is deep chasm between saying and doing.

  - There is no proper agenda and not following proper functions because of the lack of governance.

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pending against the candidate.

- If a candidate is contesting an election on the ticket of a particular party, he/she is **required to inform the party about the criminal cases pending against him/her.**

  - The political party concerned shall be **obligated to put up on its website the aforesaid information** pertaining to candidates having criminal antecedents.

  - The candidate as well as the political party concerned shall **issue a declaration in the widely circulated newspapers** in the locality about the antecedents of the candidate and also give wide publicity in the electronic media.

Addressing Criminalization of Politics in India

- **Easy access to voters on information regarding candidates:** The political parties are to publish information regarding criminal antecedents of candidates on the homepage of their websites, thus making it easier for the voter to get to the information that has to be supplied.

  - ➢ The ECI is directed to create a dedicated mobile application containing information published by candidates regarding their criminal antecedents, so that at one stroke, each voter gets such information on his/her mobile phone.

- **Extensive awareness campaign for voters:** It is to be conducted by ECI to make every voter aware about his right to know and the availability of information regarding criminal antecedents of all contesting candidates.

- **Establishment of separate cell to monitor candidates:** The ECI should create a separate cell which will monitor the required compliances so that this Court can be apprised promptly of non-compliance by any political party of the directions contained in this Court's Orders.

- **Forensic Audit of Candidates:** It should be done by an independent authority for a quick resolution for misuse of money power and defections and the audit should be made mandatory when MLAs defect to other parties.

- **Increasing the role of voters:** The voters can play an internal role by raising awareness campaigns regarding the power citizens hold in electing political parties to power.

Road Ahead

❖ India is the world's largest democratic country and the **faith of the citizenry in its institutions should not be shaken** due to the conduct of persons who have criminal antecedents.

❖ There is a pressing need for **communicating the true facts concerning those who seek to represent the public** along with the judicial and legislative sanctions against criminalization of politics.

❖ Candidates and political parties must **give wide publicity to criminal cases pending against him or her,** in the local media, both print and electronic, after he or she files nomination to contest elections.

❖ Until the citizen realize the people which bring them for **votes cannot be trusted and it will be their ultimate disadvantage**, the efforts to curb criminalization of politics will have limited impact.

  ➢ The voters also need to be **vigilant about misuse of money, gifts and other inducements** during the election.

❖ There is clear **need of a strong legislation to regulate the functioning of political parties** and an unbiased and independent authority to implement it.

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RAMAPPA TEMPLE IN TELANGANA, AND ITS UNESCO TAG

On 25 July 2021, **UNESCO inscribed** the **13th-century Ramappa temple** in **Palampet**, Telangana as a **World Heritage Site**.

A **World Heritage Site is a location** with an "**outstanding universal value**". This signifies "**cultural and/or natural significance** which is **so exceptional as to transcend national boundaries** and to be of **common importance for present and future generations of all humanity**". To be included, sites must meet at least **one of the ten selection criteria**, such as representing a **masterpiece of human creative genius**, or **exhibiting an important interchange of human values** over a span of time or within a cultural area of the world.

The decision **to inscribe the Ramappa temple** was taken at the **44th session** of the **World Heritage Committee of UNESCO** held on 25 July 2021 **in China.**

Prime Minister Narendra Modi tweeted, "**Excellent**! Congratulations to everyone, especially the **people of Telangana.** The **iconic Ramappa Temple** showcases the **outstanding craftsmanship** of **great Kakatiya dynasty.** I would urge you all to visit **this majestic Temple complex** and get a **first-hand experience of it's grandness.**"

The **Rudreswara (Ramappa) Temple** is situated **near Warangal.** An inscription dates it to **1213** and says it was built by a **Kakatiya General Recherla Rudra Reddy**, during the **period of the Kakatiya ruler Ganapati Deva.** "**Ramappa is the main Shiva temple** in a larger walled temple complex, which includes several smaller temples and structures," **Raghvendra Singh**, Secretary, Ministry of Culture (under which the ASI functions), said.

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- **India to safeguard its neighbour:** Russia has an opportunity to collaborate with India to shape the emerging order in the Indo-Pacific, which can be done given the historical trust between the two sides.

- **Russia to tackle China's presence in Arctic:** India is not a serious military power as of now in the Pacific but helping its naval capabilities reach that goal would also help Russia in tackling China's challenge to its pre-eminence in the Arctic.

Challenges

- **Polar Silk Route by China:** China defines itself as a "near-Arctic state" and as part of its Polar Silk Road, China's activities would increase in the Arctic in the coming years.

  ➢ The strategic experts in China have even argued that whoever controls the Arctic sea route would control the world economy and China should play an active role in this area.

- **China's larger military reach:** Beijing is a major defence supplier to several of the region's States including Bangladesh, Myanmar, Sri Lanka, Indonesia, Malaysia, the Philippines, and Thailand, dwarfing India's minimal sales, defence dialogues and occasional joint military exercises in the region.

- **Security Issues and Strategic Challenges:** The cheaper imports from China are on a steady growing scale which is not appealing for the domestic economy in developing economies.

  ➢ The nature of the market has taken a hit and now where developing countries fear the danger of zero-sum mercantilism and rising protectionism in western economies.

- **Thucydides Trap:** It should be one of the prominent strategic concerns and security issues at present India face in the region from a major power.

  ➢ This imbalance in the balance of power equations or as Allison puts in a likelihood of conflict cannot be avoided.

- **Debt trap from Chinese assistance:** The US State Department report contains details of how China has ensured that developing countries across Asia and Africa are drawn into a "debt trap", because of the terms of Chinese "assistance".

Russia's opposition to Indo-Pacific Order

- **Rejected American concept of Indo-Pacific:** The Russia sees the Indo-Pacific as an American creation by and hence, Moscow has rejected it outright.

  ➢ At the government level, Russia continues to oppose the Indo-Pacific but academia, think tanks and even the media have started to engage with this idea.

- **Echo of Cold War:** The Indo-Pacific is seen as an echo of the Cold War by the country and Russia is not welcoming the idea of the Indo-Pacific as a new geopolitical construct that would replace the Asia-Pacific.

- **Indo-Pacific Region creates dividing lines:** The Minister of Defense of Russia said that changing the construct from the Asia-Pacific to the Indo-Pacific would only create diving lines and tensions and restrain regional order.

- **Indo-Pacific region unable to serve interest of stakeholders**: The Indo-Pacific concept does not serve the interests of all players, instead only the interests of certain countries.

  ➢ It seems like Russia is rejecting the Indo-Pacific geopolitical construct, which they believe supports the interests of the United States and its allies only.

- **Russia is not welcoming the Indo-Pacific concept:** The country is more concerned with the military issues happening in the western hemisphere, particularly western countries' initiatives to expand North Atlantic Treaty Organization (NATO).

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DECODING THE LEGALITY OF 'AUTHORIZED' SURVEILLANCE IN INDIA

In response to the finding by a **global collaborative investigative project** that **Israeli spyware Pegasus** was used to target at **least 300 individuals in India**, the government has claimed that all interception in India takes place lawfully. So, what are the laws **covering surveillance in India?**

Communication surveillance in India takes place primarily **under two laws** — the **Telegraph Act, 1885** and the **Information Technology Act, 2000.** While the **Telegraph Act deals with interception of calls**, the **IT Act** was enacted to deal with surveillance of **all electronic communication**, following the **Supreme Court's intervention in 1996.** A **comprehensive data protection law** to address the gaps in existing frameworks for surveillance is yet to be enacted.

Telegraph Act, 1885

Section 5(2) of the Telegraph Act reads: "On the occurrence of **any public emergency**, or **in the interest of the public safety**, the Central Government or a State Government or any officer specially authorised in this behalf by the Central Government or a State Government may, if satisfied that **it is necessary or expedient so to do in the interests of the sovereignty and integrity of India**, the security of the State, friendly relations with foreign states or public order or for preventing incitement to the commission of an offence, for reasons to be recorded in writing, by order, direct that any message or class of messages to or from any person or class of persons, or relating to any particular subject, **brought for transmission by** or **transmitted or received by any telegraph**, shall not be transmitted, or shall be intercepted or detained, or shall be disclosed to the Government making the order or an officer thereof mentioned in the order…"

Under this law, the **government can intercept calls only in certain situations** — the **interests of the sovereignty and integrity of India**, the **security of the**

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state, **friendly relations with foreign states or public order**, or for preventing incitement to the commission of an offence. These are the same restrictions imposed on **free speech under Article 19(2) of the Constitution.**

Significantly, even these restrictions can be imposed only when there is a condition precedent — the **occurrence of any public emergency**, or in the interest of public safety.

Additionally, a **proviso in Section 5(2)** states that even this lawful interception cannot take place against journalists. "Provided that press messages intended to be published in India of correspondents accredited to the **Central Government or a State Government** shall not be intercepted or detained, unless their transmission has been prohibited under this sub-section."

Supreme Court intervention

In **Public Union for Civil Liberties v Union of India (1996)**, the Supreme Court pointed out **lack of procedural safeguards in the provisions of the Telegraph Act** and laid down certain guidelines for interceptions. A public interest litigation was filed in the wake of the report on "**Tapping of politicians phones**" by the CBI.

The court noted that authorities engaging in interception were not even maintaining adequate records and logs on interception. Among the guidelines issued by the court were **setting up a review committee** that can look into **authorisations made under Section 5(2) of the Telegraph Act.**

"**Tapping is a serious invasion of an individual's privacy.** With the growth of highly sophisticated communication technology, the **right to sold telephone conversation**, in the privacy of one's home or office without interference, is increasingly susceptible to abuse. It is no doubt correct that every Government, however democratic, exercises some degree of subrosa operation as a part of its intelligence outfit but at the same time **citizen's right to privacy has to be protected** from being abused by authorities of the day," the court said.

headed by former **Delhi High Court Chief Justice A P Shah** were tasked with **identifying the gaps in laws affecting privacy.**

On surveillance, the committee pointed out **divergence in laws on permitted grounds**, "**type of interception**", "**granularity of information that can be intercepted**", the degree of assistance from service providers, and the "**destruction and retention**" of intercepted material, according to a report by the Centre for Internet & Society.

Although the grounds of selecting a person for surveillance and extent of information gathering has to be recorded in writing, the wide reach of these laws has not been tested in court against the cornerstone of fundamental rights.

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India has a great history of malaria control. The highest incidence of malaria occurred in the 1950s, with an estimated 75 million cases with 0.8 million deaths per year.

The launch of **National Malaria Control Programme in 1953** and the **National Malaria Eradication Programme in 1958** made it possible to bring down malaria cases to 100,000 with no reported deaths by 1961. This is no doubt a great achievement has been made so far.

But from a nearing stage of elimination, **malaria resurged to approximately 6.4 million cases in 1976.** Since then, confirmed cases have decreased to 1.6 million cases, approximately 1100 deaths in 2009 to less than 0.4 million cases and below 80 deaths in 2019.

India accounted for 88% of malaria cases and **86% of all malaria deaths in the WHO South-East Asia Region in 2019** and is the **only country outside Africa** among the **world's 11 `high burden to high impact'** countries.

The road ahead for India:

India is a signatory to National Framework for Malaria Elimination (NFME) 2016-2030 aiming for **malaria elimination by 2030.** This framework has been outlined with a vision **to eliminate disease from the country** which would contribute to improved health with quality of life and poverty alleviation.

India stands at a very crucial stage. The present challenge is the detection of asymptomatic/afebrile cases in most endemic areas.

The current approach for mass screening with **Rapid Diagnostic Tests (RDTs)** would not fulfil the basic purpose because these **tests fail to detect <100 parasites/µL blood** and also the problem of deletion of certain diagnostic genes in the **Plasmodium falciparum dominated areas.** To overcome this, a **microPCR-based point-of-care device** that **detects <5 parasites/µL blood** can be used. The same technology is being used in **Tuberculosis and COVID-19 diagnosis.**

THE SHIFT TO ELECTRIC VEHICLES – WHAT IS IN STORE?

Recently, it was reported that 650 of the 8,033 Nexons sold in June 2021 were **Electric Vehicles (EVs)**, that is, had electricity-driven engines.

- It has been ascribed to the fact that thanks to a **spate of central and state government subsidies**, the e-variant now costs only Rs 2 lakh more than the diesel and Rs 3 lakh more than the petrol variant.

Significance of Switching to Electric Vehicles

- **Electric vehicles are saving the climate:** Air pollutants from gasoline- and diesel-powered vehicles cause asthma, bronchitis, cancer, and premature death.

  - The long-term health impacts of localized air pollution last a lifetime, with the effects borne out in asthma attacks, lung damage, and heart conditions.

- **EVs are covering entire gamut of vehicles:** The Electric vehicles fall into three main categories:

  - Battery electric vehicles are powered by electricity stored in a battery pack.

  - Plug-in hybrids combine a gasoline or diesel engine with an electric motor and large rechargeable battery.

  - Fuel cell vehicles split electrons from hydrogen molecules to produce electricity to run the motor.

- **EVs have a smaller carbon footprint than gasoline-powered cars:** The electricity that charges and fuels battery electric and plug-in hybrid vehicles comes from power grids, which rely on a range of sources — from fossil fuels to clean renewable energy.

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- They want to ensure that the vehicle would get them to their destination before the battery runs out.

- **Financing challenges:** EV customers currently face various financing challenges such as limited financing options, high interest, high insurance cost, and limited loan opportunities.

- **Vehicle costs:** Electric cars generally have higher sticker prices than their gasoline-fueled counterparts, mostly because of expensive materials and processes used in battery production.

- **Zero-carbon fantasy:** Sourcing the minerals used for batteries, dismantling batteries which have deteriorated, and building and delivering vehicles to customers worldwide all involve substantial CO_2 emissions.

Switching to Electric Vehicles can be problematic, because

- **Hefty subsidies being offered by the government:** The government is subsidizing a small affluent section of the car-owning population.

  - A complete shift to EVs will therefore transfer Rs 2,770 crore from taxpayers to this fraction every year till the government terminates these incentives.

- **Number of security issues:** The electric and hybrid vehicles have a number of security issues that are not related to conventional vehicles, and include electric shock, explosion, flood of the electrolyte and fire.

- **Uncertainty associated with the state of the battery after mechanical damage:** The connectors may be defective and to lose communication with one or all parts of the battery with unknown amount of energy remaining in the system.

  - The issues related to the malfunction of the battery after damage will be evidence of leakage, leaking electrolyte (carbon solvents are flammable), thermal hazards (observed battery temperatures exceeding 1200°C after malfunction) and hazard particles.

❖ **Standardized location of switches:** The manufacturers of electrical vehicles install switches that will stop the energy from the battery case in accident.

  ➢ The location of these switches must be standardized for security.

❖ It is expected in the **next 20 years the number of small light electric vehicles (SEVs) to significantly increase** and become future solution for urban mobility because of their dimensions.

❖ The **protection of vulnerable road users, compatibility with heavier vehicles and new active safety systems** must be taken into account to ensure adequate security of EVs in the future regulations.

❖ The Government's vision to **touch a 25% registration mark by 2024 is a quite practical approach** and will help the city in curbing other concerning factors including generating employment opportunities, pollution levels, etc.

❖ The states need to start **planning for the proliferation of electric vehicle chargers in both public spaces** as well as **privately owned overnight chargers.**

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PEGASUS: A SPY THAT WON'T WAIT; WILL DIE BEFORE IT IS EXPOSED

Zero-click installation that requires **no action by the target** is not the only ability that makes Pegasus the **super spyware it is.** What also makes it unique is the capability of "**active collection**", which gives attackers the power to "**control the information**" they want to collect from the targeted device.

This set of features, says a marketing pitch of the **Israeli company NSO Group** that developed Pegasus, are called "**active as they carry their collection upon explicit request of the operator**", and "**differentiates Pegasus from any other intelligence collection solution**", that is, spyware.

"Instead of just waiting for information to arrive, hoping this is the information you were looking for, the **operator actively retrieves important information from the device**, getting the exact information he was looking for," the NSO pitch says.

'Active' data extraction

The NSO Group categorises the snooping into **three levels: initial data extraction**, **passive monitoring**, and **active collection.**

Unlike other spyware that provide **only future monitoring of partial communications**, says NSO, Pegasus allows the extraction of all existing, including historical, data on the device for "**building a comprehensive and accurate intelligence picture**." The initial extraction sends SMS records, contacts, call history (log), emails, messages, and browsing history to the command and control server.

While Pegasus monitors and **retrieves new data real-time** — or periodically if configured to do so — from an **infected device**, it also makes available a whole set of active collection features that allow an attacker to take **real-time actions on the target**, and **retrieve unique information** from the device and the surrounding area in its location.   (Page **1** of 3)

footprints to only a few hundred bytes and to ensure minimal impact on the target's cellular data plan.

Data transmission stops automatically when the battery level is low, or when the target is roaming. When transmission is not possible, Pegasus stores the collected data in a **hidden and encrypted buffer** which is set to reach no more than 5 per cent of the free space available on the device. Under rare circumstances when no transmission is possible **through safe channels**, an attacker can collect urgent data through text messages but this, warns NSO, **may incur costs that appear on the target's phone bill.**

The communication between **Pegasus and the central servers** takes place through the **Pegasus Anonymizing Transmission Network (PATN)**, which makes tracing back to the origin "**non-feasible**". The PATN nodes, says NSO, are spread across the world, redirecting Pegasus connections through different paths prior to reaching the Pegasus servers.

Self-destruct function

Pegasus comes complete with an **efficient self-destruct mechanism.** In general, says NSO, "we understand that it is more important that the source will not be exposed and the target will suspect nothing than keeping the agent alive and working." **Any risk of exposure automatically activates the self-destruct mechanism**, which also comes into effect if Pegasus does not communicate with its server from an infected device for 60 days or a customised period of time.

There is a **third scenario in which the self-destruct mechanism is activated.** From the day it released Pegasus, the NSO Group has not allowed Pegasus to infect American phone numbers. The company does not even allow infected phones to travel to the United States. The moment a victim enters the US, **Pegasus in her device goes into self-destruct mode.**

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800-YEAR-OLD RAMAPPA TEMPLE'S UNIQUE SANDBOX TECHNOLOGY AND 'FLOATING BRICKS' HELPED IT GET THE UNESCO TAG

On 25 July 2021, **UNESCO inscribed** the **13th-century Ramappa temple** in **Palampet**, Telangana as a **World Heritage Site**.

A **World Heritage Site is a location** with an "**outstanding universal value**". This signifies "**cultural and/or natural significance** which is **so exceptional as to transcend national boundaries** and to be of **common importance for present and future generations of all humanity**". To be included, sites must meet at least **one of the ten selection criteria**, such as representing a **masterpiece of human creative genius**, or **exhibiting an important interchange of human values** over a span of time or within a cultural area of the world.

The decision **to inscribe the Ramappa temple** was taken at the **44th session** of the **World Heritage Committee of UNESCO** held on 25 July 2021 **in China.**

Prime Minister Narendra Modi tweeted, "**Excellent**! Congratulations to everyone, especially the **people of Telangana.** The **iconic Ramappa Temple** showcases the **outstanding craftsmanship** of **great Kakatiya dynasty.** I would urge you all to visit **this majestic Temple complex** and get a **first-hand experience of it's grandness.**"

The **Rudreswara (Ramappa) Temple** is situated **near Warangal.** An inscription dates it to **1213** and says it was built by a **Kakatiya General Recherla Rudra Reddy**, during the **period of the Kakatiya ruler Ganapati Deva.** "**Ramappa is the main Shiva temple** in a larger walled temple complex, which includes several smaller temples and structures," **Raghvendra Singh**, Secretary, Ministry of Culture (under which the ASI functions), said.

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Musical pillars: A pillar has the sculpture of Lord Krishna. He can be seen sitting on a tree playing his flute denoting the mythological tale of Gopika Vastrapaharanam. Saptaswaras (Sa Ri Ga Ma Pa Da Ni Sa) can be heard by tapping the sculpture of the lord.

Warding off the evil eye: A portion of the main pillar inside the sanctorum is a little flawed. The carvings are misplaced. In fact, the portion also has a slight dent to it. Sculptor Ramappa intentionally left the space blank to ward off the evil eye, according to locals.

13 needle holes: There is a fine carving on one of the pillars which is shaped like a bangle. It has 13 holes which, according to legend, indicate Lord Shiva's Trayodashi (13 in Sanskrit). "According to Hindu mythology, Lord Shiva defeated demons on Trayodashi to save other sages. The 13 thin-threaded holes between the stone pillars reflect the richness of the architecture of Kakatiya kings. Only a small thread or a needle can pass through the holes of the sculpture. It is unclear as to how there were specific tools in the 13th century to carve this out," said Papa Rao.

Optical illusion: There is one carving where there are three dancers in the middle but there are only four legs. If you close the body of the middle dancer, you can see two girls dancing. But when you close the bodies of the girls on either side, the middle legs become the legs of the dancer in between.

Thank you, elephants: "There are 526 elephants (adding up to 13, the significance of which is explained above), carved on the outer walls of the temple. The startling fact is that each elephant is chipped differently. This was done to acknowledge the contribution of elephants in building the temple and transporting the granite stone. Also, the elephants face clockwise, indicating the ritual of Hindus walking in that direction around a shrine," said Prof Panduranga Rao.

Egyptian and Persian carvings: The figurines carved in sandstone all around the temple feature Persian men, Egyptian Pharaohs, among others, pointing to the trade relations the Kakatiyas had with these countries during the 13th century. There are also some sculptures of Jains and Buddhists.

Mandakinis: There are 12 black stone statues of mandakinis (dancing figures) perched atop pillars of the temple. Each figure has a distinct feature with the one named, Ragini, wearing high heels. "The work is so intricate that on one mandakini, there is a shadow of a necklace worn by her which looks natural but is actually carved out. Irrespective of the angle of the sun, we can see the shade on her body," explained Papa Rao.

Kakatiya emblem: "You can also find carvings and statues of elephants and lions on the walls and pillars here. The foot is shaped like an elephant trunk, in the middle is a human shoulder and the top is a lion's face. That is called Gaja Kesari which is the Kakatiya dynasty's emblem. It is symbolic of their valour," Papa Rao said.

The temple is built with three different coloured stones (red, white and brown), with the colours merged on a single stone.

The temple was **proposed by the government** as its **only nomination for the UNESCO World Heritage site tag for 2019.** It has been in **UNESCO's tentative list since 2014.**

The **World Heritage Convention's operational guidelines** say that a **tentative list** is like an inventory of properties a country thinks should be on the **World Heritage Site.** After **UNESCO includes a property in the tentative list**, the country prepares a nomination document that will be considered by the UNESCO World Heritage Committee.

In this case, the **nomination was under Criterion I (Masterpiece of human creative genius)** and **Criterion III (bearing a unique or at least an exceptional testimony to a cultural tradition**, which is living or which has disappeared). Earlier, the **International Council of Historic Monuments and Sites (ICOMOS)** had evaluated Ramappa's heritage status.

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But the thing is, **gravity is actually surprisingly weak.** An object must be really big before it **can exert a strong enough gravitational pull to overcome the strength of the material** from which it's made. Smaller solid objects (metres or kilometres in diameter) therefore **have gravitational pulls that are too weak to pull them into a spherical shape.**

This, incidentally, is **why you don't have to worry about collapsing into a spherical shape under your own gravitational pull** — your body is far too strong for the tiny gravitational pull it exerts to do that.

Reaching hydrostatic equilibrium

When **an object is big enough that gravity wins** — overcoming the strength of the material from which the object is made — it will tend to pull the **entire object's material into a spherical shape.** Bits of the object that are too high will be pulled down, displacing material beneath them, which will cause areas that are too low to push outward.

When that **spherical shape is reached**, we say the object is in "**hydrostatic equilibrium**". But **how massive must an object be to achieve hydrostatic equilibrium?** That depends on what it's made of. An object made of **just liquid water would manage it really easily**, as it would essentially have no strength — as water's molecules move around quite easily.

Meanwhile, **an object made of pure iron would need to be much more massive for its gravity to overcome the inherent strength of the iron.** In the Solar System, the threshold diameter required for an icy object to become spherical is at least **400 kilometres** — and for objects made primarily of stronger material, the threshold is even larger.

Saturn's moon Mimas, which looks like the **Death Star**, is spherical and has a **diameter of 396km.** It's currently the smallest object we know of that may meet the criterion.   . (Page 2 of **3**)

Constantly in motion

But **things get more complicated** when you think about the fact that **all objects tend to spin or tumble through space.** If an object is spinning, locations at its equator (the point halfway between the two poles) effectively feel a slightly reduced **gravitational pull compared to locations near the pole.**

The result of this is the **perfectly spherical shape** you'd expect in **hydrostatic equilibrium is shifted** to what we call an "**oblate spheroid**" — where the object is wider at its equator than its poles. This is true for our spinning Earth, which has an **equatorial diameter of 12,756km** and a **pole-to-pole diameter of 12,712km.**

The **faster an object in space spins**, the **more dramatic this effect is.** Saturn, which is less dense than water, spins on its axis every ten and a half hours (compared with Earth's slower 24-hour cycle). As a result, **it is much less spherical than Earth.**

Saturn's equatorial diameter is just above 120,500km — while its polar diameter is just over 108,600km. That's a difference of almost 12,000km!

Some stars are even more extreme. The **bright star Altair**, visible in the northern sky from Australia in winter months, is one such oddity. It spins once every nine hours or so. That's so fast that its **equatorial diameter is 25% larger than the distance between its poles!**

The short answer

The closer you look into a question like this, the more you learn. But to answer it simply, **the reason big astronomical objects are spherical** (or nearly spherical) is because **they're massive enough that their gravitational pull can overcome the strength of the material they're made from.**

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COULD BALLOONS POWER UNCENSORED INTERNET IN CUBA?

Florida's Republican governor, **Ron DeSantis**, called In July 2021 on the administration of President Joe Biden to **greenlight a plan to transmit the Internet to people in Cuba** via **high-altitude balloons** when their government has blocked access.

Can the Internet be delivered by balloon?

Yes. For years, **Alphabet** — the **parent company of Google** — worked to perfect an **Internet-balloon division service** called **Loon.** It shut down that project in **January**, saying **it wasn't commercially viable.**

Prior to the shutdown, **Loon balloons had been providing service in mountainous areas in Kenya** through a **partnership with a local telecom**, **Telkom Kenya.** The service also helped **provide wireless communications in Puerto Rico** in the aftermath of **Hurricane Maria**, which destroyed the **island's mobile network.** Loon partnered with AT&T to make service available.

How does that work?

The **Loon balloons were effectively cell towers** the **size of a tennis court.** They **floated 60,000 to 75,000 feet (18,000- 23,000 meters)**, above the Earth, **well above commercial jetliner routes.** Made of the commonplace **plastic polyethylene**, the **balloons used solar panels for electricity** and **could deliver service to smartphones** in partnership with a local telecom.

Each balloon could serve thousands of people, the company said. But they had to be **replaced every five months** or so because of the **harsh conditions in the stratosphere.** And the balloons could be difficult to control. "**Navigating balloons through the stratosphere has always been hard**," wrote Salvatore Candido, who had been chief technology officer for Loon, in a December 2020 blog post. The company created **algorithms that tracked wind patterns.**
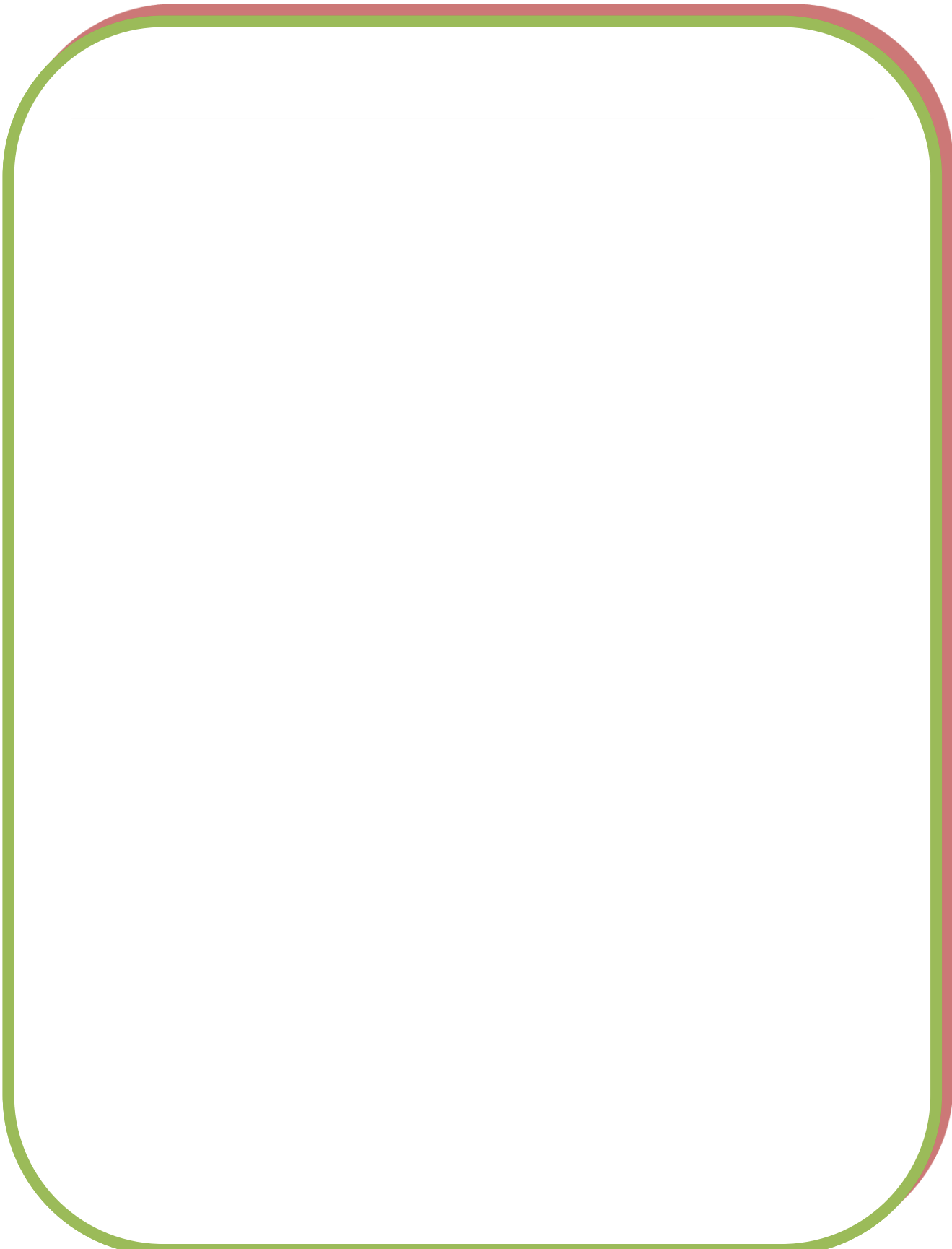
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