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INDIAN EXPRESS

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INDIAN NUTRITION RATING (INR)

(Syllabus: GS Paper 3 - Economy & Agriculture)

FOOD REGULATOR RELEASES DRAFT REGULATIONS

Nutrition rating stars set to appear soon on food pack labels

ANONNA DUTT
NEW DELHI, SEPTEMBER 20

THE FOOD Safety and Standards Authority of India (FSSAI), the country's apex food regulator, has released draft notification for front-of-pack labelling to discourage consumers from buying packaged food high in sugar, salt, and fat, which will require pre-packaged food to carry a star graphic – ranging for 0 to 5 – next to the brand name.

Like the star-rating system for energy efficiency of electronic products, the 'Indian Nutrition Rating (INR)' will see the unhealthiest food items carry a 0-star rating and the healthiest carry a 5-star rating.

The draft notification comes even as several health experts have questioned the star-rating system, contending that a warning symbol on foods high in sugar, salt, and fat are more likely to discourage people from consuming them.

As per the draft notification, items will be given scores based on contribution of energy and content of saturated fat, sugar, sodium, fruit and vegetables (FV), nuts, legumes, and millets (NLM), dietary fibre, and protein per 100 gm of solid or 100 ml liquid foods. Solid food with a score of more than 25 will be given 0.5 stars, and those with a score less than -(minus) 11 will get 5 stars.

"The INR system rates the overall nutritional profile for packaged food by assigning it a rating from ½ star (least healthy) to 5 stars (healthiest). More stars indicate the food product is better positioned to provide for daily human need of nutrients. The logo shall be displayed close in proximity to the name or brand name of the product on front of pack," the notification stated.

To generate the star-rating logo for the product, food businesses have to submit nutritional profiles of the products concerned on FSSAI's FoSCoS (Food Safety Compliance System) portal.

Food such as milk and milk products, whey, butter oil, ghee, vegetable oil and fat, fresh and frozen fruit and vegetables, fresh and frozen meat, egg, fish, flour, and sweeteners will not have to display the star rating. Carbonated beverages without any energy or sugar will also not be eligible for declaring the rating, according to the notification.

Context: The Food Safety and Standards Authority of India (FSSAI), the country's apex food regulator, has released draft notification for front-of-pack labelling.

Front of Package Labeling (FOPL)

- An expert group established by the FSSAI in 2013 in India first suggested Front of Package Labeling (FOPL) in 2014.
- In 2019, the FSSAI issued draft notification Food Safety Standards (Labelling and Display) Regulations.
- The proposal requires food products to have color-coded labelling.
- The FSSAI delinked FOPL from general labelling laws in December 2019.
- The FSSAI decided to include the "health-star rating system" in its draft guidelines for front of package labelling on February 15, 2022. (FOPL).
- A product receives between 0.5 and 5 stars under the health-star rating system.
- Based on the amount of salt, sugar, and fat in a packaged food item, the HSR format assigns a rating, which is printed on the front of the package.
- One of the most effective strategies in the world for encouraging customers to choose healthy food choices is the FoP labelling system.
- It functions in the same way that cigarette packs are marked with pictures to deter consumption.
- The World Health Organization (WHO) defines FoP labels as nutrition labelling systems that are presented on the front of food packages in the principal field of vision, and present simple, often graphic information on the nutrient content or nutritional quality of products.
- The Codex Alimentarius Commission mentions that "FoP labelling is designed to assist in interpreting nutrient declarations".

INDIAN EXPRESS

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E-SIM TECHNOLOGY

(Syllabus: GS Paper 3 - Sci & Tech)

New US iPhones use eSIMs exclusively, what is the technology?

CHETAN NAYAK
MUMBAI, SEPTEMBER 20

IN A clear sign of where the smartphone segment is headed in the near future, Apple has dropped the physical SIM in the new iPhones in the US. While in India and other markets the old SIM will co-exist with the e-SIM, it is clear that the latter will soon replace the former, which is no longer a mandatory plug to capture the network.

The eSIM or embedded SIM technology has been around for years but is now becoming mainstream thanks to fitness-oriented smartwatches and smartphones.

What is an eSIM?

An eSIM is an embedded SIM — essentially the same hardware as a regular SIM card chip, but instead a permanently embedded part of the gadget's motherboard.

So, just like a traditional SIM card, an eSIM consists of some components that are now a part of your phone's internal organs. It also functions in the same way, acting as a unique identifier for telecom operators and other consumers to reach your smartphone during a call or a text.

However, being attached to the motherboard also allows re-programming, letting users switch operators without having to replace any physical SIM cards. eSIMs were first established in 2012, but despite their futuristic use cases, they have not made physical SIMs entirely obsolete yet. This is because along with its advantages, eSIMs also have some shortcomings.



The eSIM may ultimately replace physical cards. *Getty Images*

Advantages of eSIMs

CONVENIENCE: If you're someone who doesn't deal with switching SIM cards or phones regularly, switching to eSIMs will be a one-time process. It allows an easy switch to another operator in another state or country. The ability to store multiple SIM profiles in your eSIM means simpler switching without the need to physically switch cards.

SECURITY: If you lose a phone with a physical SIM card, maybe attackers will not be able to navigate your phone thanks to lock screen, biometric activation and remote locking support. However, they can still use your SIM card on another phone to make calls, send texts or worse, use your phone number to breach your social media or bank accounts. An eSIM prevents this, as there is no physical element to pull out.

Disadvantages of eSIMs

EMERGENCIES: If your phone stops working, runs out of battery, or simply falls and gets a cracked screen, your communication is brought to a complete standstill with eSIMs.

LIMITED SUPPORT: You cannot use an eSIM phone in a country where the telecom operators don't support the technology. This isn't an issue if your phone supports both eSIM and traditional SIMs, but is a problem on devices like the US-version iPhone 14.

FOR PREMIUM USERS: In India, eSIM support is currently available on more expensive devices like Apple iPhones, Google Pixel series, and Samsung Galaxy S-series phones among others.

TELCOS GET MORE CONTROL: An eSIM may save you the initial trip to the telecom operator's store to get your SIM card, but you would have to rely on your operator every time you want to switch your phone. Many are concerned about the power this gives to operators, who may choose to charge extra for eSIM plans or for switching phones in the future.

What the future holds

The eSIMs may replace physical SIM cards entirely in a few years from now, but the plastic SIM cards will stay relevant in the present day, given that most smartphones across the lower segments rely on the technology — and the fact that there are advantages of physical SIM cards for which there is not a workaround yet.

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eSIM Technology

- An eSIM (embedded-SIM) is a form of programmable SIM card that is embedded directly into a device.
- Instead of an integrated circuit located on a removable universal integrated circuit card (UICC), typically made of PVC, an eSIM consists of software installed onto an eUICC chip permanently attached to a device.
- Once an eSIM carrier profile has been installed on an eUICC it operates the same as a physical SIM, complete with a unique ICCID and network authentication key generated by the carrier.
- A traditional SIM card consists of an integrated circuit located on a universal integrated circuit card (UICC), typically made of PVC, which is manually inserted into a device.
- By contrast, an eSIM is a virtualized SIM card profile installed onto an eUICC chip permanently surface mounted to a mobile device at the factory.
- eSIM is a global specification by the GSMA that enables remote SIM provisioning of any mobile device.
- GSMA defines eSIM as the SIM for the next generation of connected consumer devices.
- Networking solutions using eSIM technology can be widely applied to various Internet of Things (IoT) scenarios, including connected cars (smart rearview mirrors, on-board diagnostics (OBD), vehicle Wi-Fi hotspots), artificial intelligence translators, MiFi devices, smart earphones, smart metering, GPS tracking units, DTU, bike-sharing, advertising players, video surveillance devices, etc.

LIVEMINT Page 7

RBI'S PCA FRAMEWORK
(Syllabus: GS Paper 3 - Economy)

Central Bank exits RBI's PCA framework

Shayan Ghosh
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MUMBAI

Central Bank of India will no longer be subject to lending curbs imposed by the Reserve Bank of India in June 2017 due to its poor asset quality and loss of profitability. RBI on Tuesday said the state-owned bank was removed from the prompt corrective action restrictions due to an improvement in its financial health.

Central Bank is the last lender to exit RBI's PCA norms. Its performance was reviewed by the board for financial supervision of RBI, and according to the assessed figures for FY22, it did not breach PCA norms.

The bank, RBI said, has provided a written commitment that it will comply with norms of minimum regulatory capital, net non-performing asset and leverage ratio on an ongoing basis. It has also apprised RBI of the structural and systemic improvements it has put in place, that will help it meet the commitments. "Taking all the above into consideration, it has been decided that Central Bank of India is taken out of the PCA restrictions subject to certain conditions and continuous monitoring," RBI said.

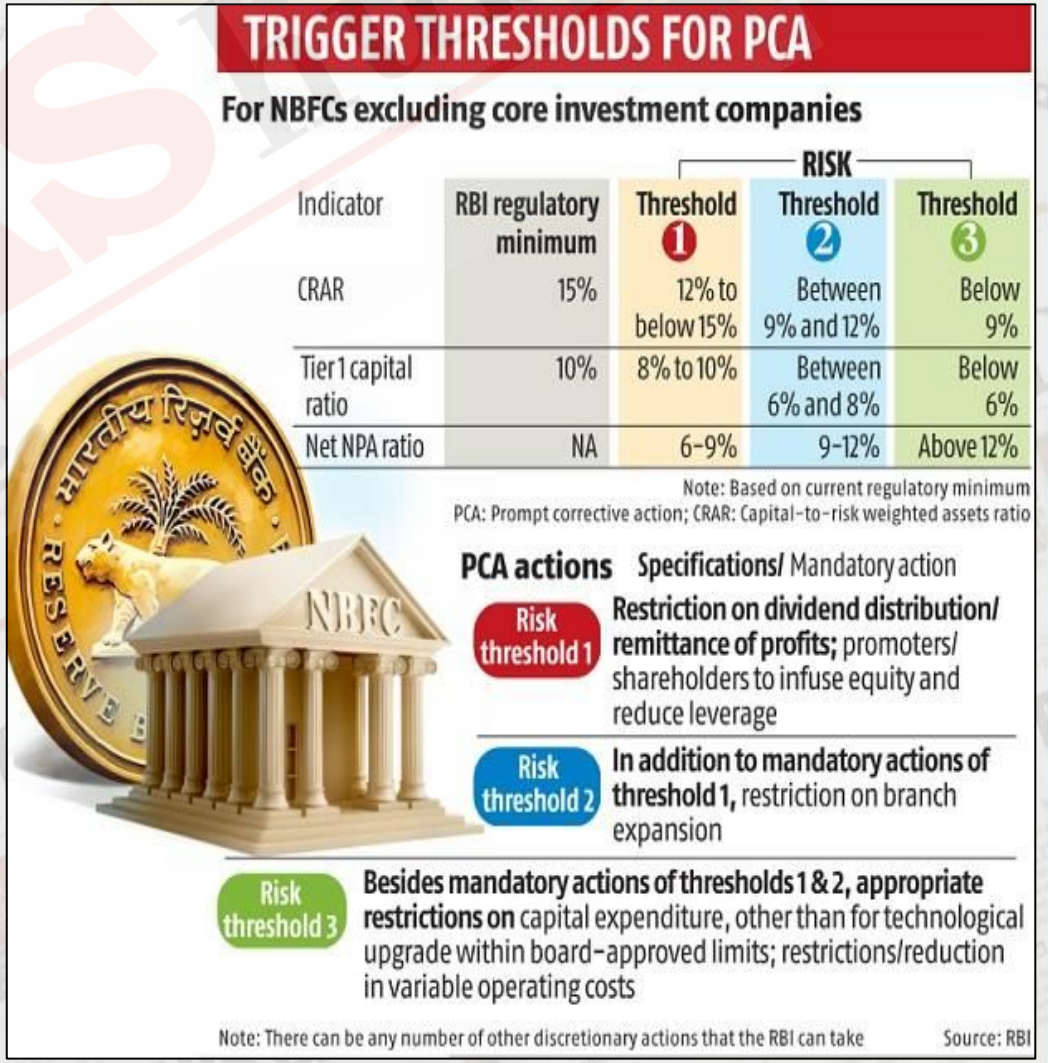
On 8 August, deputy governor M.K. Jain said that RBI was examining Central Bank of India's request on removing the PCA restrictions. "It is not only quantitative parameters, but also qualitative parameters which we examine before taking a decision because when any bank has been taken out of the PCA, it should be on a sustainable basis," Jain had said.

Since December 2002, PCA served as an early intervention mechanism to check NPAs and was later revised in April 2017.

Context: Central Bank of India will no longer be subject to lending curbs imposed by the Reserve Bank of India in June 2017 due to its poor asset quality and loss of profitability.

RBI's PCA framework

- Prompt Corrective Action or PCA is a framework under which banks with weak financial metrics are put under watch by the RBI. The PCA framework deems banks as risky if they slip below certain norms on three parameters — capital ratios, asset quality and profitability.
- It has three risk threshold levels (1 being the lowest and 3 the highest) based on where a bank stands on these ratios. Banks with a capital to risk-weighted assets ratio (CRAR) of less than 10.25 per cent but more than 7.75 per cent fall under threshold 1.
- Those with CRAR of more than 6.25 per cent but less than 7.75 per cent fall in the second threshold.
- In case a bank's common equity Tier 1 (the bare minimum capital under CRAR) falls below 3.625 per cent, it gets categorised under the third threshold level.
- Banks that have a net NPA of 6 per cent or more but less than 9 per cent fall under threshold 1, and those with 12 per cent or more fall under the third threshold level.
- On profitability, banks with negative return on assets for two, three and four consecutive years fall under threshold 1, threshold 2 and threshold 3, respectively.



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RFID-BASED FASTAG

(Syllabus: GS Paper 3 - Sci & Tech)

We should put GPS-based highway tolls to a privacy test

RAHUL MATTHAN



is a partner at Trilegal and also has a podcast by the name Ex Machina. His Twitter handle is @matthan

On 15 February 2021, the government made it mandatory for highway tolls to be paid through its FASTag system. After a few weeks of confusion, the country adapted to this new requirement. Vehicles of all description procured RFID stickers and affixed them on their windshields so that they could drive through FASTag lanes where tolls were automatically deducted from their electronic wallets.

FASTag has greatly improved wait-times and convenience of travel all over the country. Where, in 2017-18, it accounted for just ₹3,532 crore of the country's total ₹21,948 crore in toll collection, last year it accounted for as much as ₹33,274 crore of the overall ₹34,535 crore collected. Wait times have reduced as paying tolls requires vehicles to slow down, but not stop.

But the government believes we can do even better. It is looking to replace the RFID-based FASTag with a GPS-based system that will calculate (and charge) tolls based on the distance that the vehicle traverses down a geo-fenced path. If this system works as advertised, not only will cars no longer have to slow down at a toll plaza, it will allow us to radically redesign our approach to toll collection by establishing tolls for any section of a road that we choose.

My first thought, when I first heard about the plan to roll out this system, was the risk it posed to personal privacy. Even though the system is primarily being designed to make road travel smoother, once deployed it will make it easier than ever before to arrive at personal profiles based on travel patterns.

This, you might argue, is already possible. Your FASTag is already linked to your electronic wallet, which means that each time you pay the toll you are already dropping pins on the map indicating where you were when you paid it. All someone needs to do in order to generate a personal travel profile of you is aggregate all these locations and arrange them in chronological order.

While that might be true, the fact is that the FASTag system is constrained by the infrastructure required to deploy it. As long as toll collection depends on being within close physical proximity of an RFID chip, we can only establish the infrastructure required to collect it at limited locations, as the cost of the infrastructure should be justified by the toll collected. A GPS-based tolling system, on the other hand, requires no physical collection infrastructure. Vehicles equipped with GPS transmitters will automatically be charged based on the distance they traverse along a set of defined geo-fenced routes.

While these geo-fences will initially coincide with the FASTag tolled highways they are designed to replace, going forward, there is nothing to stop the ministry of road transport from establishing similar geo-fences over other stretches of road to fund the cost of its maintenance and upkeep. Once that happens, can we still be as sanguine about the impact of this new technology on our privacy?

I must, at this stage, hasten to mention that I am not making a case for the withdrawal of the GPS tolling solution. To the contrary, I believe such a system will significantly improve the flow of traffic through some of the worst choke-points on our roads. If we do not implement these measures now, we will be compelled to at some point anyway.

The project offers benefits and its risks can be minimized by building in safeguards at the outset

As regular readers of this column will attest, I am loath to shun technology simply because it might be misused. I believe that all new innovations bring with them downsides and benefits in equal measure. We should not shy away from adopting a new technology simply because we fear that it could, in the wrong hands, cause harm—just as we should not blindly embrace new technology without evaluating what could befall us if we are not careful.

We need to view this new GPS tolling technology through this lens. While the benefits it offers cannot be denied, we need to appreciate that, once implemented at scale throughout the country, it has the potential to create such vast data sets of travel information that it could cause considerable harm if disclosed. And while this might not warrant shelving the plan in its entirety, the government would be remiss in its constitutional obligations if it fails to at least assess the harms that could result.

Most modern privacy laws stipulate that before any new technology is deployed, the entity responsible for rolling it out should conduct a privacy impact assessment to evaluate the implications, if any, that it will have on personal privacy.

Where harms are identified, the technology should not be rolled out until appropriate mitigation measures have been put in place. I see no reason why new technologies deployed by the government should not be subject to the same standard. Just as all new legislative proposals are subject to a pre-legislative consultation process, new technology projects should undergo privacy impact assessments before they go live.

That said, we should not shy away from creating large data sets simply because of all that could go wrong. Instead, we should put in place measures to prevent that from happening. This could include the establishment of a privacy office within the government tasked with ensuring that all technology projects that process personal data comply with the standards set out in the Right to Privacy judgement of the Supreme Court.

As the government uses technology in an increasing number of areas of governance, measures like this will be necessary to ensure that it strikes the right balance between harm and benefit.

Context: Government is looking to replace the RFID-based FASTag with a GPS-based system that will calculate (and charge) tolls based on the distance that the vehicle traverses down a geo-fenced path.



RFID or GPS for vehicle tracking

- RFID stands for Radio Frequency Identification and is a form of wireless communication.
  - It uses radio waves to identify a wide variety of 'tagged' objects (and even people) from a distance.
  - Unlike traditional barcodes, RFID does not need a direct line of site to 'see' an object.
- GPS stands for Global Positioning System.
  - It uses satellite signals to communicate and track asset or vehicle location - signals are picked up by processors and an algorithm calculates the exact location.
  - This is then communicated using a cellular network or alternative long-range system.
- The biggest difference between RFID and GPS technology comes down to distance.
- RFID creates a 'closed' system within a process or workflow that identifies assets or vehicles as they move between fixed points in a defined system.
- GPS on the other hand provides asset or vehicle location in a global context in real-time without the need to be anchored by a fixed reader.
- There are also differences in the cost of implementation of these two technologies, and practical considerations.
- RFID technology on the other hand, is far more practical in smaller geographic areas and for large numbers of tagged vehicles due to the far lower cost of RFID tags.
- Whether using active or passive RFID solutions, their power demands are far lower than for GPS.
- While GPS technology is a much more one-dimensional solution with a focus on location data (especially over very long distances).
- RFID tracking systems add another dimension and provide a range of more nuanced benefits for tracking and managing vehicles.

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RECOGNISED NATIONAL AND STATE PARTIES

(Syllabus: GS Paper 2 - Polity & Governance)

Donations to recognised parties come under EC lens

Damini Nath
NEW DELHI

The Election Commission's ongoing drive to clean up the electoral space has now gone "beyond RUPPs (registered unrecognised political parties)" to cover recognised national and State parties, according to a top EC official on Tuesday.

The EC has delisted or declared as inactive 537 registered unrecognised political parties since May for failing to comply with various rules and misusing the Income-Tax (I-T) exemption. The official said while taking action against the RUPPs, another discrepancy came to light, one that impacts recognised parties too. While the I-T Act allows cash donations of up to ₹2,000 only, the Representation of the People Act, 1951, requires parties to submit details to the EC of donations of above ₹20,000 each.

Last week, Chief Election Commission Rajiv Kumar wrote to the Law Ministry proposing changes to the mandatory reporting of donations. The EC proposed that parties should declare each donation over ₹2,000, rather than the existing limit of ₹20,000.

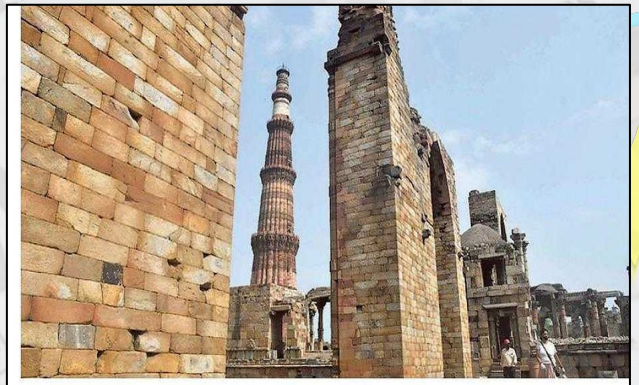
Context: The Election Commission's ongoing drive to clean up the electoral space has now gone "beyond RUPPs (registered unrecognised political parties)" to cover recognised national and State parties.

Recognised political parties

- A registered political party is accorded the status of a recognized state or national party as per the criteria listed in 'The Election Symbols (Reservation and Allotment) Order, 1968'.
- **Recognition as a State Party:** For any political party to be eligible for recognition as a State Party in a state, it has to satisfy any of the five conditions listed below.
  - Secure at least 6% of the valid vote & win at least 2 seats in an Assembly General Election
  - Secure at least 6% of the valid vote & win at least 1 seats in a Lok Sabha General Election
  - Win at least 3% of the seats or at least 3 seats , whichever is more, in an Assembly General Election
  - Win at least 1 out of every 25 seats from a state in a Lok Sabha General Election
  - Secure at least 8% of the total valid vote in an Assembly or a Lok Sabha General Election
- **Recognition as a National Party:** For any political party to be eligible for recognition as a National Party, it has to satisfy any of the three conditions listed below.
  - Secure at least 6% of the valid vote in an Assembly or a Lok Sabha General Election in any four or more states and won at least 4 seats in a Lok Sabha General Election from any State or States
  - Win at least 2% of the total Lok Sabha seats in a Lok Sabha General Election and these seats have to be won from at least 3 states
  - The party is recognized as a State Party in at least four states
- **Advantages of being recognized as a State or National Party**
  - The biggest advantage of being recognized is getting the reserved symbol. A party recognized as a state party gets a reserved symbol within the state.
  - All the candidates contesting from that party will get the same symbol throughout the state. For National Parties, the reserved symbol can be used across the country by its contesting candidates.
  - This is one the biggest advantages since symbol plays a very important role in elections.
  - There are also other advantages to the recognized parties like subsidized land for party offices, free air time on Doordarshan & All India Radio, supply of electoral roll copies free of cost during elections etc.

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QUTUB MINAR
(Syllabus: GS Paper 1 - Art & Culture)



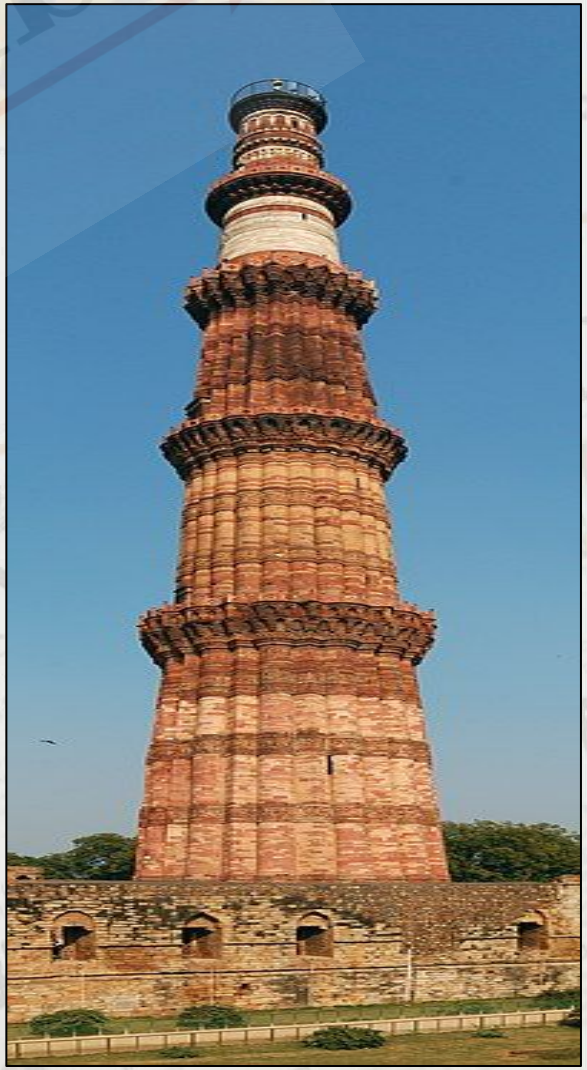
Intervention plea in Qutub Minar row dismissed

The Saket district court on Tuesday dismissed the intervention plea of Kunwar Mahender Dhwaj Pratap Singh who claimed that the Qutub Minar was built on land that belonged to him and hence he should be made party to the main suit filed in the court that demands worship rights in the temples built inside the ASI-protected monument. Dismissing the plea, Additional District Judge Dinesh Kumar said that he will be hearing the main suit, filed on behalf of Jain deity Tirthankar Lord Rishabh Dev and Hindu deity Lord Vishnu (through their next of friends) that seeks restoration of 27 Hindu and Jain temples at the Quwwat-ul-Islam Mosque inside the Qutub Minar, next month.

Context: The Saket district court dismissed the intervention plea of an individual who claimed that the Qutub Minar was built on land that belonged to him.

Qutub Minar

- Qutab Minar is a soaring, 73 m-high tower of victory, built in 1193 by Qutab-ud-din Aibak immediately after the defeat of Delhi's last Hindu kingdom.
- The tower has five distinct storeys, each marked by a projecting balcony and tapers from a 15 m diameter at the base to just 2.5 m at the top.
- The first three storeys are made of red sandstone; the fourth and fifth storeys are of marble and sandstone.
- At the foot of the tower is the Quwwat-ul-Islam Mosque, the first mosque to be built in India.
- An inscription over its eastern gate provocatively informs that it was built with material obtained from demolishing '27 Hindu temples'.
- A 7 m-high iron pillar stands in the courtyard of the mosque. It is said that if you can encircle it with your hands while standing with your back to it your wish will be fulfilled.
- Qutab-ud-din Aibak, the first Muslim ruler of Delhi, commenced the construction of the Qutab Minar in 1200 AD, but could only finish the basement.
- His successor, Iltutmush, added three more storeys, and in 1368, Firoz Shah Tughlak constructed the fifth and the last storey.



TIMES OF INDIA

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Oil spill covers 8km² off Sindhudurg coast

Umesh K Parida

Navi Mumbai: It is now officially confirmed that there is oil spill off the Sindhudurg coast due to the sunken tanker. The oil spill has been spreading from the MT Parth tanker off Vijaydurg coast since Monday. The Indian Coast Guard (ICG) has confirmed to the Sindhudurg district administration that the oil spill has covered around 8sqkm area in the deep sea, and warned that Devgad, Vengurla, Malvan and Goa coastal areas may be hit. About 250 litres of oil spill dispersants have been sprayed over the area from a helicopter.

The 101-metre-long MT Parth vessel, loaded with 3,911MT bitumen, was navigating from Khor Fakkan port, UAE, to New Mangalore port but sank on September 16 evening due to engine failure. Apart from the bitumen, the vessel had 140KL fuel oil (type not disclosed) and 30KL diesel. The ICG had rescued 19 crew members.

"The oil spills are suspected to have come from the waste oil tanks of the ship," said Captain Sandeep Sbhujbal, regional port officer, Maharashtra Maritime Board.



About 250 litres of oil spill dispersants have been sprayed over the area from a helicopter

"The oil spills were noticed by fishermen on Tuesday morning in the sea," said Suhas Toraskar, a fishing community leader at Vengurla.

"Aquatic organisms on the sea surface, such as phytoplanktons, are the worst affected. Oil spills can get trapped in the mouth of fish, sea turtles, etc causing their death. Tar balls formed are washed ashore on the beaches, killing snails, crabs, etc. Oxygen mixed in sea water lessens its penetration, allowing migration of sea animals from the area," said a Mumbai-based marine biologist on the possible effects.

OIL SPILLS POLLUTION

(Syllabus: GS Paper 3 - Env & Eco)

Context: It is now officially confirmed that there is oil spill off the Sindhudurg coast due to the sunken tanker.

Oil spills pollution

- Oil spills include any spill of crude oil or oil distilled products (e.g., gasoline, diesel fuels, jet fuels, kerosene, Stoddard solvent, hydraulic oils, lubricating oils) that can pollute the surface of the land, air, and water environments.
- Oil spills harm ocean and animal life.
- **Remediation**:
  - Bioremediation using bacteria such as Paraperlucidibaca, Cycloclasticus, Oleispira, Thalassolituus Zhongshania and some others helped remove several classes of contaminants.
  - Floating barriers, called booms, are used to restrict the spread of oil and to allow for its recovery, removal, or dispersal.
  - An oil skimmer is a device that is designed to remove oil floating on a liquid surface from oil spills.
  - Various sorbents (e.g., straw, volcanic ash, and shavings of polyester-derived plastic) that absorb the oil from the water are used.
  - Dispersants are chemicals that are sprayed on a surface oil slick to break down the oil into smaller droplets that more readily mix with the water.
- No solution completely removes the oil, in the best case scenario, only 40 percent of oil from a spill can be cleaned up by mechanical means.
- The ability of natural recovery to restore the environment can play an important role, and actions to enhance its effectiveness needs to be considered.

Law and convention

- There is no law covering oil spill as such and its consequential environmental damage in India.
- India has "the National Oil Spill Disaster Contingency Plan of 1996 (NOS-DCP)" to handle such situations.
- In 2015 India ratified the **International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001** (Bunker Convention).
  - Convention ensures adequate, prompt and effective compensation for damage caused by oil spills.
  - It is administered by the International Maritime Organization (IMO).

DOWN TO EARTH

Sept 21

SATURN AND ITS MOON

(Syllabus: GS Paper 1 - Geography)



SCIENCE & TECHNOLOGY

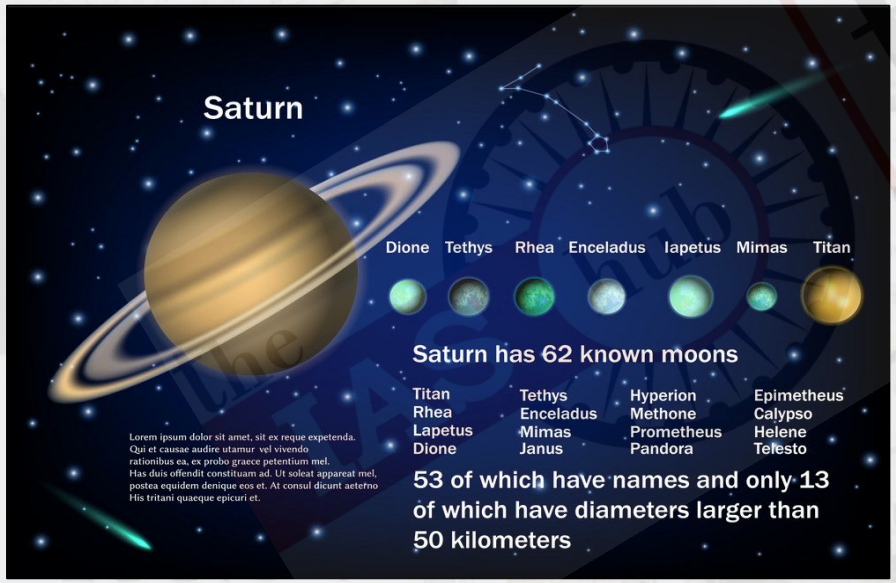
Saturn's mysterious rings & extreme tilt: Former moon may be responsible

Saturn is unlikely to have had a tilt during its formation stages

NEXT NEWS >

By Rohini Krishnamurthy

Published: Tuesday 20 September 2022



Context: A pre-existing moon likely left Saturn with its bright rings and extreme tilt, according to a new study.

Key points

- A close encounter with Saturn may have caused the former moon named 'Chrysalis' to disintegrate, leading to the formation of the rings.
- Four planets - Jupiter, Saturn, Neptune and Uranus - are known to have rings.
- Saturn's rings, composed of water ice particles ranging from microns to tens of metres in size, are the brightest.
- Saturn has a tilt of 26.73 degrees, Earth 23.45 degrees and Jupiter 3 degrees.
- Saturn is unlikely to have had a tilt during its formation stages.
- Currently, gas giants Neptune, Uranus and Saturn have a substantial tilt, suggesting that this feature did not arise during the formation stages. Jupiter - also a gas giant - is the only exception.
- Saturn got its tilt due to gravitational interactions with its neighbour Neptune.
- The new study argue that Saturn is no longer under Neptune's gravitational influence.
- Instead, Titan - Saturn's largest satellite - may have been responsible, suggested observations from NASA's Cassini spacecraft, which orbited Saturn from 2004-2017.
- Titan is migrating from Saturn at about 11 centimetres per year, 100 times faster than previous estimates.
- Titan's fast migration caused the planet to tilt further, reducing Neptune's gravitational influence on Saturn.
- Saturn's moment of inertia, which describes how mass is distributed in the planet's interior, is not unknown.
- Saturn's tilt, the study explained, depends on whether the matter is more packed at its core or toward the surface.
- Cassini measured the gravitational field around the entire planet.
- Saturn was no longer under the grasp of Neptune, pouring water on the Titan migration theory.
- Chrysalis likely orbited Saturn for several billion years. Roughly 160 million years ago, Chrysalis became unstable and came too close to its planet. This encounter likely pushed the moon away or destroyed it, according to the scientists.
- Consequently, it may have helped rescue Saturn from Neptune's grasp, giving rise to the tilt.

PIB

Sept 21

INSOLVENCY AND BANKRUPTCY

(Syllabus: GS Paper 3 - Economy)

IBBI amends Insolvency and Bankruptcy Board of India (Liquidation Process) Regulations, 2016 and Insolvency and Bankruptcy Board of India (Voluntary Liquidation Process) Regulations, 2017

Context: The Insolvency and Bankruptcy Board of India notified the Insolvency and Bankruptcy Board of India (Liquidation Process) (Second Amendment) Regulations, 2022 ('Amendment Liquidation Regulations') and Insolvency and Bankruptcy Board of India (Voluntary Liquidation Process) (Second Amendment) Regulations, 2022 ('Amendment Voluntary Liquidation Regulations').

Key amendments

- The Committee of Creditors (CoC) constituted during Corporate Insolvency Resolution Process (CIRP) shall function as Stakeholders Consultation Committee (SCC) in the first 60 days. After adjudication of claims and within 60 days of initiation of process, the SCC shall be reconstituted based upon admitted claims.
- The liquidator has been mandated to conduct the meetings of SCC in a structured and time bound manner with better participation of stakeholders.
- The scope of mandatory consultation by liquidator, with SCC has been enlarged. Now, SCC may even propose replacement of liquidator to the Adjudicating Authority (AA) and fix the fees of liquidator, if the CoC did not fix the same during CIRP.
- If any claim is not filed during liquidation process, then the amount of claim collated during CIRP shall be verified by the liquidator.
- Wherever the CoC decides that the process of compromise or arrangement may be explored during liquidation process, the liquidator shall file application only in such cases before Adjudicating Authority for considering the proposal of compromise or arrangement, if any, within thirty days of the order of liquidation.
- Specific event-based timelines have been stipulated for auction process.
- Before filing of an application for dissolution or closure of the process, SCC shall advice the liquidator, the manner in which proceedings in respect of avoidance transactions or fraudulent or wrongful trading, shall be pursued after closure of liquidation proceedings.

Insolvency and Bankruptcy Board of India (IBBI)

- It is the regulator for overseeing insolvency proceedings and entities like Insolvency Professional Agencies (IPA), Insolvency Professionals (IP) and Information Utilities (IU) in India.
- It was established on 1 October 2016 and given statutory powers through the Insolvency and Bankruptcy Code, which was passed by Lok Sabha on 5 May 2016.
- It covers Individuals, Companies, Limited Liability Partnerships and Partnership firms.
- The new code will speed up the resolution process for stressed assets in the country.
- It attempts to simplify the process of insolvency and bankruptcy proceedings.
- It handles the cases using two tribunals like NCLT (National company law tribunal) and Debt recovery tribunal.

DST

Sept 21

DETECTION OF THE CANCER

(Syllabus: GS Paper 3 - Sci & Tech)

DRI and Customs seize 10,230 kg of Red Sanders (Red Sandalwood), with estimated worth of Rs 6 crore, at ICD Palwal, Haryana

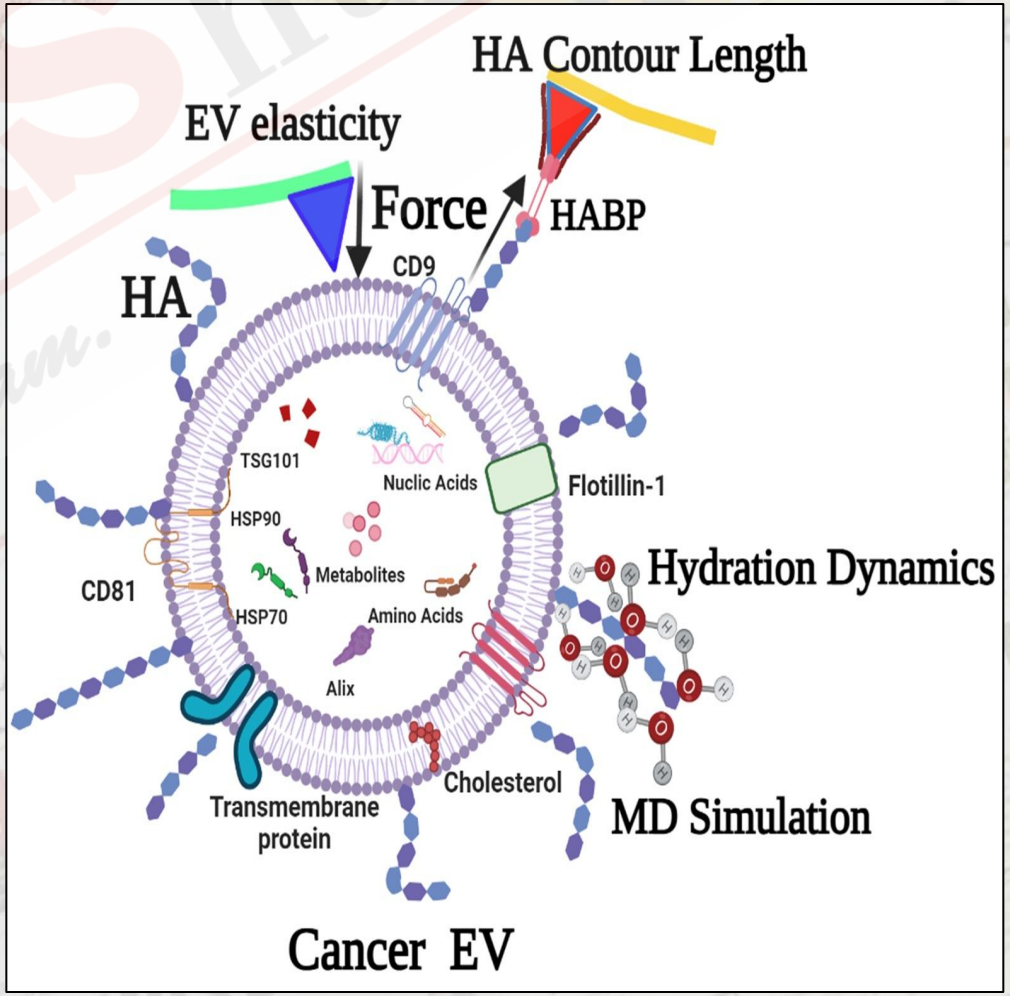
Context: Detection of the cancer microenvironment may soon become much easier with the help of a new molecular biosensor recently developed by a team of scientists.

Key points

- Cancer cells secrete small pouches, namely extracellular vesicles (EV) covered with sugar molecules, Hyaluronan (HA), which has a direct link to tumour malignancy and is considered a potential biomarker for early diagnosis of colon cancer.
- These EVs are abundant in body fluids (blood, faeces, etc.), and all types of cells secrete these EVs into the extracellular matrix. Cancer cells secrete at least two times more EVs into the body fluids than normal cells).
- Therefore, these EVs could be isolated non-invasively from a patient's body for early cancer diagnosis.
- It is known that the sugar molecule HA associated with these cancer EVs carries danger signals in tumour progression when it gets fragmented by hyaluronidases (Hyals) and reactive oxygen species in pathological conditions.
- They study showed that a single cancer cell-derived EV is coated with very short chain HA molecules (contour length less than 500 nanometers) using single molecule techniques and elucidated that these short-chain HA-coated EVs are significantly more elastic than the normal cell-derived EVs.
- This intrinsic elasticity of HA-coated EVs in cancer helps them to withstand multiple external forces during extracellular transportation, uptake, excretion by cells, adhesion to cell surfaces, etc.

Other developments

- **Cancer Detection Tool:** The team at Yale University has developed a tool which can potentially detect triggers in patients with renal as well as brain cancers, a finding that could advance the treatment of cancer by early detection.
- **Early Cancer Detection Van**: On August 3, 2021, Rajasthan Medical and Health Minister Dr. Raghu Sharma launched the Early Cancer Detection (Preventive Oncology Mobile) Van.



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