

## Prelim Bits 23-08-2023 | UPSC Daily Current Affairs

### Shadow Banks

Reserve Bank of India is reluctant to hand out NBFC licences to PhonePe, Razorpay, BharatPe, OkCredit and NiYo which operates as neo-bank.

- The term “shadow banking,” was coined by McCulley.
- The shadow banking system consists of lenders, brokers, and other credit intermediaries who fall outside the realm of traditional regulated banking.
- **Examples** - Hedge funds, private equity funds, mortgage lenders, and even large investment banks.
- It is generally unregulated and not subject to the same kinds of risk, liquidity, and capital restrictions as traditional banks are.
- It played a major role in the expansion of housing credit in the run-up to the 2008 financial crisis.
- **Advantages** - It reduces the dependency on traditional banks as a source of credit.
- It acts as an additional source of lending, and provides diversification in the financial system.
- **Disadvantages** - Shadow banking can contribute to too much lending in the economy.
- This has the potential to lead to a harmful downturn.

### Neo banks

- They are new-age banks without any physical location, present entirely online.
- They provide digital, mobile-first financial solutions for payments, money transfers, lending, and more.
- They allow customers to make deposits and withdraw money and offer debit cards, investment facilities, etc.
- In India, these firms don't have a bank licence of their own but rely on bank partners via corporate collaborations to provide licensed core banking services and over-the-top financial services.
- **Neobanks** provide products that come under the regulatory framework of the 3 financial regulators
  1. Reserve Bank of India
  2. Securities & Exchange Board of India
  3. Insurance and Regulatory Development Authority of India

### References

1. [Hindu Business Line - RBI reluctant to give NBFC licences to fintechs](#)
2. [Financial Times - India's shadow banks are resurging](#)

## Bharat NCAP

*From October 1, car manufacturers can volunteer to get a star rating indicating the safety of their models in a crash, under an indigenous programme for testing.*

- **About** - The Bharat New Car Assessment Programme (Bharat NCAP) is modelled on the *Global New Car Assessment Programme (Global NCAP)*.
- The Global NCAP is a project of the Towards Zero Foundation, a U.K.-registered charity that promotes universal adoption of the United Nation's most important motor vehicle safety standards worldwide.
- **Key features** - The new programme will be applicable to passenger vehicles with not more than 8 seats in addition to the driver's seat with gross vehicle weight not exceeding 3,500 kg.
- It will be based on the soon-to-be published *Automotive Industry Standard 197*, which lays down testing protocols.
- A rating from one star to five stars will be assigned to a vehicle after an evaluation of 3 parameters
  1. Adult occupant protection
  2. Child occupant protection
  3. Safety assist technologies present in the car
- The programme is **voluntary** except in certain cases such as a base variant of a popular vehicle model (minimum clocked sale of 30,000 units), or when the Ministry recommends a model for testing based on market feedback or in the interest of public safety.

## References

1. [The Hindu - India gets its own car crash testing programme](#)
2. [CNBC - Nitin Gadkari launches Bharat NCAP](#)

## Vegetated canopies

*As Europe battles scorching temperatures and wildfires, vegetated canopies were introduced in Spain for creating green spaces.*

- Vegetated canopies are sail-like structures that have been anchored to the frontages of surrounding buildings.
- They *mimic natural canopies* found in forests and various plant species.
- They can be placed in streets, where planting trees may not be feasible owing to the lack of space.
- The plants grow hydroponically, with a water supply point and water outlet for draining purposes.
- **Advantages** - It reduces the temperature both in their surroundings and under the cover.
- The plants chosen belong to species that are optimized for the absorption of gases such as carbon monoxide and nitrogen oxide.
- The substrate also absorbs sound waves, reducing noise pollution.
- It could eventually contribute to urban biodiversity, creating a healthier ecosystem

that supports a variety of wildlife.

*A square meter of a vegetated canopy generates the oxygen required by a person for the whole year, apart from filtering harmful gases.*

## Reference

1. [The Indian Express - Vegetated canopies for creating green spaces](#)

## Methylovimicrobium buryatense 5GB1C

*According to a new study, a strain of bacteria could potentially remove methane from major emission sites such as landfills, paddy fields, and oil and gas wells.*

- Methylovimicrobium buryatense 5GB1C is a bacterial strain that consumes methane (methanotrophs).
- It can grow at low methane concentrations ranging from 200-1,000 ppm.
- Bacteria produce biomass after consuming methane, which can be used as feed in aquaculture.

## Methanotrophs

- Methanotrophs are organisms that require methane as a source of carbon and energy for their metabolism.
- They are gram-negative bacteria that are capable in utilizing methane as a carbon energy source and able to grow both aerobically or anaerobically which only need single-carbon compound to live on.

## Methane

- Methane is responsible for 30% global warming.
- It has a lifetime of 12 years (lesser when compared to CO<sub>2</sub>)
- It is over 85 times more potent than carbon dioxide (CO<sub>2</sub>) on a 20-year timescale.

## Reference

1. [Down To Earth - A bacteria that can eat methane](#)

## Demon Particles

*Scientists recently claimed to have found a “demon particle” while plunging into the depths of atoms.*

- Electrons have both mass and charge.
- In 1956, physicist David Pines predicted that the combinations of electrons in a solid could form a composite particle that is massless, has no charge and does not interact with light.
- This is called as a demon particle.

- It is not a particle in the traditional sense like a proton or electron.
- This particle demonstrates its capabilities regardless of temperature, in contrast to standard superconductors, which need very low temperatures to function.
- This could pave the way for *room-temperature superconductors*.
- The newly discovered demon particle exhibits *Plasmon-like behavior* and presents particular experimental difficulties because it is electrically neutral.

*Plasmons are collective oscillations of the electrons which are present at the bulk and surface of conducting materials and in the neighborhood of conducting particles.*

## References

1. [Business Standard - Demon Particles](#)
2. [NDTV - Scientists Discover Demon Particles](#)

