Prelim Bits 28-01-2023| UPSC Daily Current Affairs

AT1 Bonds

The Bombay High Court Friday quashed the write-off of Additional Tier-1 (AT1) bonds issued by Yes Bank Ltd.

- AT1 bonds, short for Additional Tier 1 bonds, are a class of bonds issued by banks.
- These bonds are typically used by banks to bolster their core or tier-1 capital to meet Basel III norms.
- AT1 bonds are subordinate to all other debt and except common equity.
- They offer higher returns but also carry a higher risk.
- **Tenor -** AT1 bonds are unsecured bonds that have perpetual tenor.
- These bonds have no maturity date but have a call option by which the banks buy these bonds back from investors.
- **Risks -** AT1 bonds, like other bonds, pay regular interest.
- If the bank issuing is making losses or at risk of falling short of capital need, it has the discretion to either reduce or completely skip their interest pay out.
- When a bank becomes non-viable, AT-1 bonds are either converted into equity or written off based on the direction of the RBI.

References

1. Business Line - What the Yes Bank AT1 bonds fiasco is all about
2. IE - Additional Tier-1 bonds, and the case against Yes Bank

Kelp Forests

Kelp forests are declining because of climate change, showed a new study.

- Kelp forests are underwater ecosystems formed in shallow water by the dense growth of several different species known as kelps.
- Kelps are actually extremely large brown algae, although they look like plants.
- Kelp attaches to the seafloor and eventually grows to the water's surface and relies on sunlight to generate food and energy.
- They thrive in cold, nutrient-rich waters.
- Kelp can sometimes persist at lower latitudes, aided by cool water upwelling or in deep-water refugia where they are protected by thermocline.
- **Significance -** Kelp forests have great ecological and economic value.
- They provide underwater habitats to hundreds of species of invertebrates, fishes, and other algae.
- Loss of kelp forests will also lead to a decline of the unique biodiversity that they support.
- The rear-edge populations (populations in warm, low-latitudes) of kelp may contain

unique adaptive or evolutionary genetic diversity.
- Kelp populations at equatorward-range edges are particularly vulnerable to climate change and their unique trait is under threat.

Ecklonia radiate is a dominant and most widely distributed Laminarian kelp in the southern hemisphere which rapidly succumb to warmer temperatures (more than 27 °C).

References

1. Down To Earth - Kelp forests losing unique traits due to climate change

National Mission for a Green India

India is lagging behind in the targets to increase the number and quality of tree- and forest-cover plantations set in the Green India Mission.

- National Mission for a Green India (GIM) is one of the eight Missions under the National Action Plan on Climate Change.
- It aims at protecting, restoring and enhancing India's forest cover and responding to climate change.
- Improving tree cover is critical to sequester carbon and bolster India's carbon stocks as part of its international commitments to mitigate greenhouse gas emissions.
- **Target -** The target under the Mission is 10 million hectares (Mha) on forest and non-forest lands for increasing the forest/tree cover and to improve the quality of existing forest.
- From 2015-16 to 2021-22, the Centre had approved a target of increasing tree/forest cover by 53,377 hectares and improving the quality of degraded forest by 1,66,656 ha in 17 districts.
- **Achievement -** From a RTI, it is known that the 17 States had increased tree/forest cover by 26,287 hectares and forest quality improved in only 1,02,096 hectares as of December 31, 2022.
- States with significant shortfall in tree cover include

States	Committed	Achieved
Andhra Pradesh	86 ha	75 ha
Uttarakhand	6,446 ha	1,505 ha
Madhya Pradesh	5,858 ha	1,882 ha
Kerala	1,686 ha	616 ha

- Punjab, committed to 629 ha but having delivered 1,082 ha.
- As per the India State of Forest Report-2021 , forest and tree cover in the country increased by 2,261 square kilometre since the last assessment in 2019.
- However critics have pointed out that the increase in green cover was almost entirely via commercial plantations.

National Action Plan on Climate Change
• The National Action Plan on Climate Change (NAPCC) was launched in 2008.
• There are 8 national missions forming the core of the NAPCC.
• They focus on promoting understanding of climate change, adaptation and mitigation, energy efficiency and natural resource conservation.

References

1. The Hindu - States fall short of targets to improve forest cover
2. Vikaspedia - National Action Plan on Climate change

Earth's Inner Core

A new research suggested that the Earth's inner core has stopped spinning faster than the planet's surface and might now be rotating slower than it.

- The Earth's inner structure consists of 4 major layers:
    1. The outermost crust.
    2. The viscous but solid mantle below it.
    3. The liquid iron-nickel outer core.
    4. The solid iron inner core.
- Earth's inner core is a hot iron ball in the size of Pluto, hence known as "planet within the planet".
- It is roughly 5,000 kilometers (3,100 miles) below the crust.
- **Reason for rotation** - Inner core can spin independently because it floats in the liquid metal outer core.
- The spin of the inner core is driven by the magnetic field generated in the outer core and balanced by the gravitational effects of the mantle.
- The rotation of the inner core is studied through various seismic records.
- **Oscillation Cycle -** The inner core rotates, relative to the Earth's surface, back and forth, like a swing and 1 cycle of the swing is about 7 decades.



- The core is always rotating in the same direction that the entire planet rotates (eastward).
- Sometimes it rotates faster than the outer layers, other times it rotates slower, and there are times when the rotations match up.

Time Period	Relative to Earth	Name
1970s	Started rotating slightly faster	Super rotation
2009	Slowed down to rotate in sync	
Since 2009	Started rotating slower	Sub rotation
Mid-2040s	predicted to have next change	

- A new research suggested that the inner core's cycle is every 20 to 30 years, rather than the 70 proposed in the latest study.
- The changes rotation timeline is said to slightly impact the "length of day".

References

1. The Hindu - Earth's inner core rotating slower than surface
2. The Print - Earth's inner core now spinning slower than planet?

Nitrate Radicals

A new study found that parts of China and India are night-time hotspots for the production of nitrate radicals, which makes air pollution worse.

- Nitrate radical is an oxide of nitrogen that consists of three oxygen atoms bound to a nitrogen atom.
- Nitrate radicals could increase the amount of unhealthy ozone and PM2.5 fine particulate matter in the atmosphere.
- Nitrate radicals will oxidise gas pollutants such as volatile organic compounds (VOCs).
- VOCs will then generate ozone and secondary organic aerosol, both deteriorates air quality.
- Ozone is an air pollutant that affects human health and crop yield.
- Secondary organic aerosol is an important component of PM2.5
- Reducing the emissions of VOCs could reduce this night-time oxidation in India and China.

References

1. IE - 'Nitrate radicals' are likely making air pollution worse
2. Times Now - Nitrate Radicals: Making India, China air poisonous

