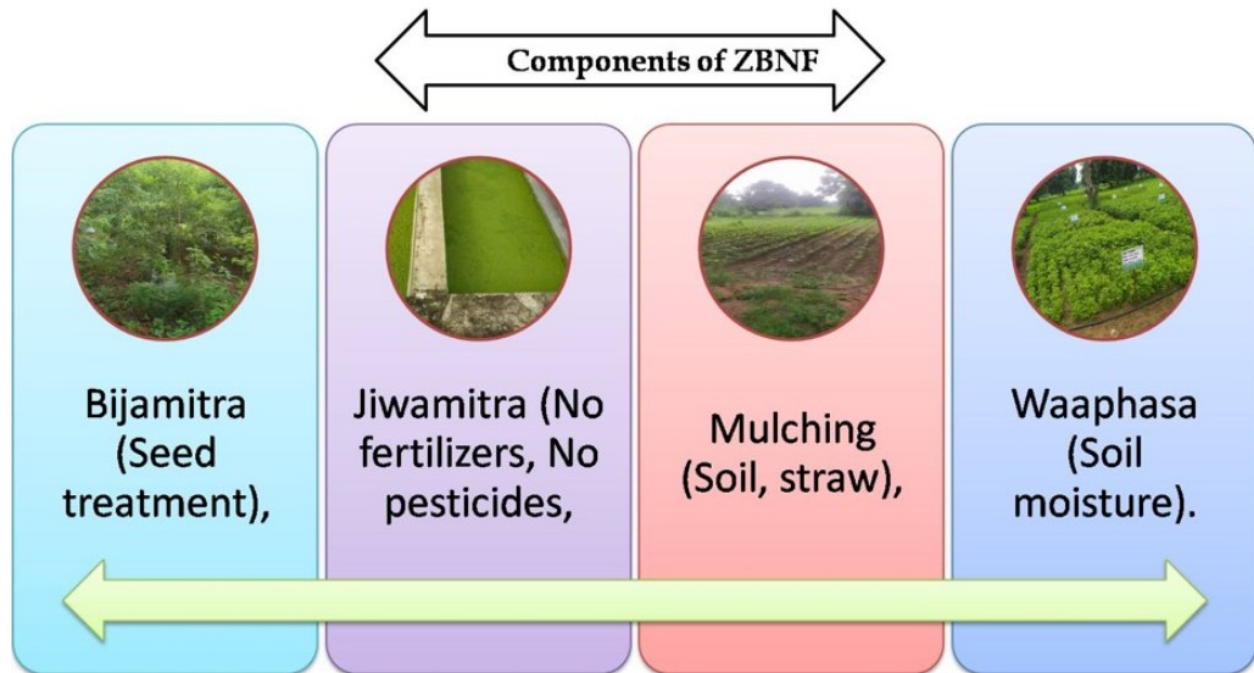


1.Zero Budget Natural Farming (ZBNF)

Topic: Environment and Ecology

In News: Zero Budget Natural Farming (ZBNF) in Andhra Pradesh has led to significantly higher



crop yield compared to organic or conventional (synthetic fertilisers and pesticides) farming. This was revealed by a recent study by researchers.

More on the Topic

- The researchers did comparisons in terms of yield, soil pH, temperature, moisture content, nutrient content and earthworm abundance.
- The results revealed that **ZBNF yield was significantly higher than both conventional and organic treatments.**
- It was observed that the yield for the conventional treatment reduced from the first to the third season (1>2>3), whereas the organic and ZBNF mean yield increased slightly through the three seasons.

About Zero Budget Natural Farming:

- Zero Budget Natural Farming (ZBNF) means **raising crops without using any fertilizers and pesticides or any other external materials.**
- The word Zero Budget refers to **the zero cost of production of all crops.**



- ZBNF guides the farmers **towards sustainable farming practices** thus helps in retaining soil fertility, to ensure a chemical free agriculture and ensure low cost of production (zero cost) and thereby enhancing the farmers income.
- In short, ZBNF, is a farming method that believes in growing crops in tune with nature.

Four main elements and models of ZBNF:

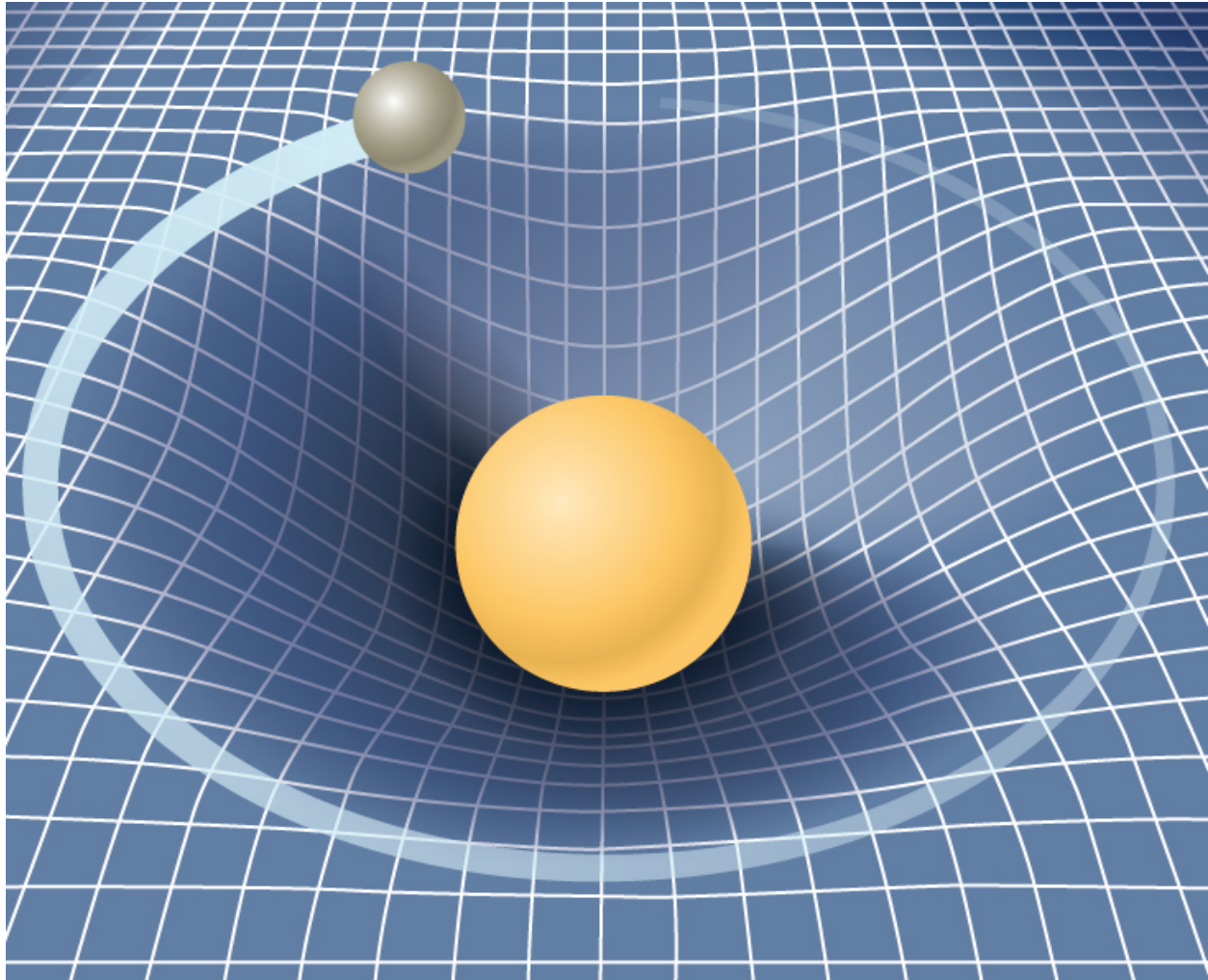
- Carbon border taxes could result in **market distortion**.
- **Bijamrita**: The seeds are treated with formulations prepared using cow dung and cow urine from native cow species.
- **Benefits**: The seeds sown in the field may be affected by fungus and other seed born/ soil borne diseases. The seed treatment using “Bijamrita” protects the seeds from diseases.
- **Jiwamrita/Jeevamrutha**: Jiwamrita is prepared using cow dung and cow urine. It is used as an input for the plants. It is a fermented microbial culture obtained from cow dung, urine, jaggery, pulse flour and uncontaminated soil. This fermented microbial culture when applied to soil, adds nutrients to the soil besides acting as a catalytic agent to promote the activity of microorganisms and earthworms in the soil.
- **Benefits**: This culture stimulates microbial activity in the soil and enhances nutrient availability for the plants, protects the crops against soil pathogens and increases carbon content of the soil.
- **Acchadana/Mulching**: Mulching is the process of covering the top soil with crop wastes/ organic waste or with cover crops.
- **Benefits**: Mulching materials decomposes and produces humus which conserves top soil, increases water retention capacity of the soil, decreases evaporation loss, encourages soil fauna besides enriching soil nutrient status and controlling weed growth.
- **Waaphasa/Moisture (Soil Aeration)**: Good aeration is required in the soil for plant growth and development.
- **Benefits**: Due to the application of Jiwamrita and mulching, the aeration of the soil increases, thus improves humus content, water availability, water holding capacity and soil structure which is most suitable for crop growth especially during drought periods.

Source: Indian Express



2.Einstein's theory of gravity

Topic: Science and Technology



In News: The map created by astronomers have confirmed Einstein's theory of gravity.

More on the Topic:

- Astronomers have made the most detailed map of dark matter showing that both the 'lumpiness' of universe and the rate at which it is growing are on expected lines as predicted using Einstein's theory of gravity.
- **Being invisible, researchers observe how dark matter interacts with the gravity of massive objects such as galaxy clusters and lumps of dark matter.**
- The gravitational field generated by these massive objects **bends and distorts light that passes through them.**
- It provides new insights into an ongoing debate called 'The Crisis in Cosmology,' suggesting that dark matter was not lumpy enough.



- Previous studies showed that these lumps are smaller than those predicted by the theory. These findings were based on the light emitted from stars in galaxies.
- **Crisis stems from measurements that use a different background light, one emitted from stars in galaxies rather than cosmic microwave background (CMB).**
- The new measurements show that both the 'lumpiness' of the universe and the rate at which it is growing after 14 billion years of evolution are on expected lines.
- New map uses **light from CMB- leftover radiation from Big Bang or the time when the universe began- and used gravitational lensing** to map the concentrations of dark matter.

About Gravitational Lensing:

- Gravitational lensing occurs when a massive celestial body — such as a galaxy cluster — **causes a sufficient curvature of spacetime for the path of light around it** to be visibly bent, as if by a lens.
- The body causing the light to curve is accordingly called a gravitational lens.
- In simpler terms Gravitational Lensing occurs when **massive objects distort and magnify light from objects behind them, acting as cosmic telescopes and making distant galaxies appear brighter.**

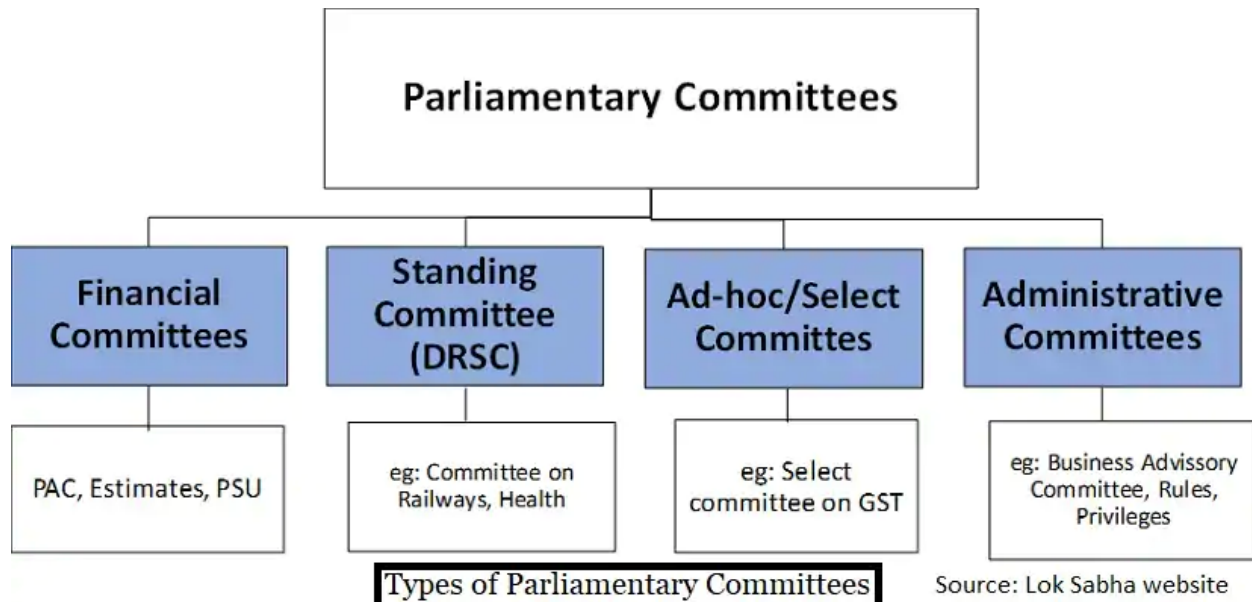
About Dark Matter:

- **Dark matter** is particles that do not have a charge which means they do not interact through electromagnetic interactions.
- **“dark”**: because they do not emit light.
- **“matter”**: because they possess mass like normal matter and hence interact through gravity.
- Unlike normal matter, dark matter does not interact with electromagnetic force. This means it does not absorb, reflect, or emit light, making it extremely hard to spot.
- Being invisible, researchers observe how dark matter interacts with gravity of massive objects such as galaxy clusters and lumps of dark matter.

Source: DTE

3. The role of Parliamentary Committees

Topic: Polity and Governance



In News: The Rajasthan Assembly has passed the Right to Health (RTH) bill.

More on the Topic:

- Due to the sheer volume of information and scale of operations that the Indian Parliament is required to undertake, it is not feasible to take up all issues on the floor of the House.
- Thus, Parliamentary committees — panels made up of MPs — are constituted to deal with such situations and take up sector-specific concerns.
- Contrary to popular perception, looking into Bills is not the only purpose that committees serve.

The evolution of committees.

- Even though a structured committee system was only established in 1993, individual committees were being formed for various reasons as far back as independence. For instance, there were many crucial committees in the Constituent Assembly.
- The Ad Hoc Committee on the Citizenship Clause, as the name suggests, was formed to discuss the nature and scope of Indian citizenship is an example.
- Today, both the Lok Sabha and the Rajya Sabha have their own Standing (permanent) Committees and Ad Hoc (need-based) Committees. There are also Joint Committees with representation from both Houses.

The role of committees:



- Committees go into the details of a **specific piece of legislation, analyse the impact it may have on governance indicators, and then make their recommendations.**
- Even though committee reports aren't binding on the government, it helps the legislature ensure an **oversight on the executive.**
- For instance, during the recently concluded Budget Session, reports tabled on the Demand for Grants highlighted certain inconsistencies on the part of the government.
- Objective assessments are possible in the confines of a committee room, where partisan divides dissolve to make way for consensus.
- This is different from the discussion on the floor of the House which involves glaring cameras that nudge parliamentarians to perform as per their respective party-lines and voter-base.
- **Committees also enable day-to-day functioning of Parliament in session.** For example, the Business Advisory Committee prepares the entire schedule of both Houses when Parliament is in session.
- Committees also enable **efficient functioning of MPs.** For instance, the Committee on papers laid on the table of the House prepares each individual paper after careful deliberation, writing and screening.

Legal/ constitutional backing of the Parliamentary Committees:

- The committees has been mentioned in the Constitution of India without providing specific provisions (regarding their composition, tenure, functions, etc).
- These matters are dealt with by the rules of two Houses.

Challenges:

- During the course of the 17th LS, only 14 Bills have been referred for the further examination so far.
- 25% of the Bills introduced were referred to committees in the 16th LS, as compared to 71% and 60% in the 15th and 14th LS respectively.
- There is a declining trend of national legislation being subjected to expert scrutiny. This reduces the quality of legislations.

Way Ahead:

- Giving more powers to ensure accountability from the legislators and the executives.
- Institutionalise procedures for mandatory consultation with parliamentary committees in law making and not allow political considerations to hasten law-making.

Source: Hindu

4.NavIC

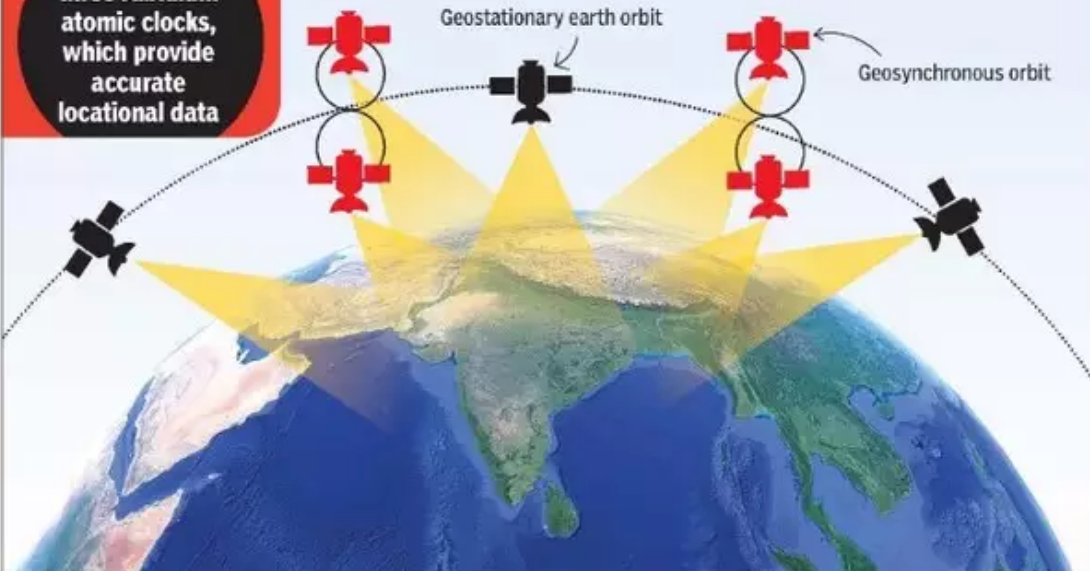
Topic: Science and Technology

IRNSS

Indian Regional Navigation Satellite System

IRNSS (NavIC) is designed to provide accurate real-time positioning and timing services to users in India as well as region extending up to 1,500 km from its boundary

<p>NAVIGATION CONSTELLATION CONSISTS OF SEVEN SATELLITES</p> <p>3 in geostationary earth orbit (GEO) and</p> <p>4 in geosynchronous orbit (GSO) inclined at 29 degrees to equator</p> <div style="background-color: black; color: white; border-radius: 50%; padding: 10px; text-align: center; margin-top: 10px;"> <p>Each sat has three rubidium atomic clocks, which provide accurate locational data</p> </div>	<p>IT WILL PROVIDE TWO TYPES OF SERVICES</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>1 Standard positioning service Meant for all users</p> </div> <div style="width: 45%;"> <p>2 Restricted service Encrypted service provided only to authorised users (military and security agencies)</p> </div> </div>
<p>Applications of IRNSS are: Terrestrial, aerial and marine navigation; disaster management; vehicle tracking and fleet management; precise timing mapping and geodetic data capture; terrestrial navigation aid for hikers and travellers; visual and voice navigation for drivers</p>	<p>While American GPS has 24 satellites in orbit, the number of sats visible to ground receiver is limited. In IRNSS, four satellites are always in geosynchronous orbits, hence always visible to a receiver in a region 1,500 km around India</p>



The diagram illustrates the IRNSS constellation over the Indian subcontinent. It shows seven satellites: three in Geostationary Earth Orbit (GEO) and four in Geosynchronous Orbit (GSO). Yellow beams from the satellites indicate their coverage area over India and the surrounding region. Labels point to the 'Geostationary earth orbit' and 'Geosynchronous orbit'.



In News: A chip capable of powering accurate and high-precision navigation, positioning, and timing applications using NavIC, the indigenous satellite-based navigation system, was showcased at the Defence Space Symposium.

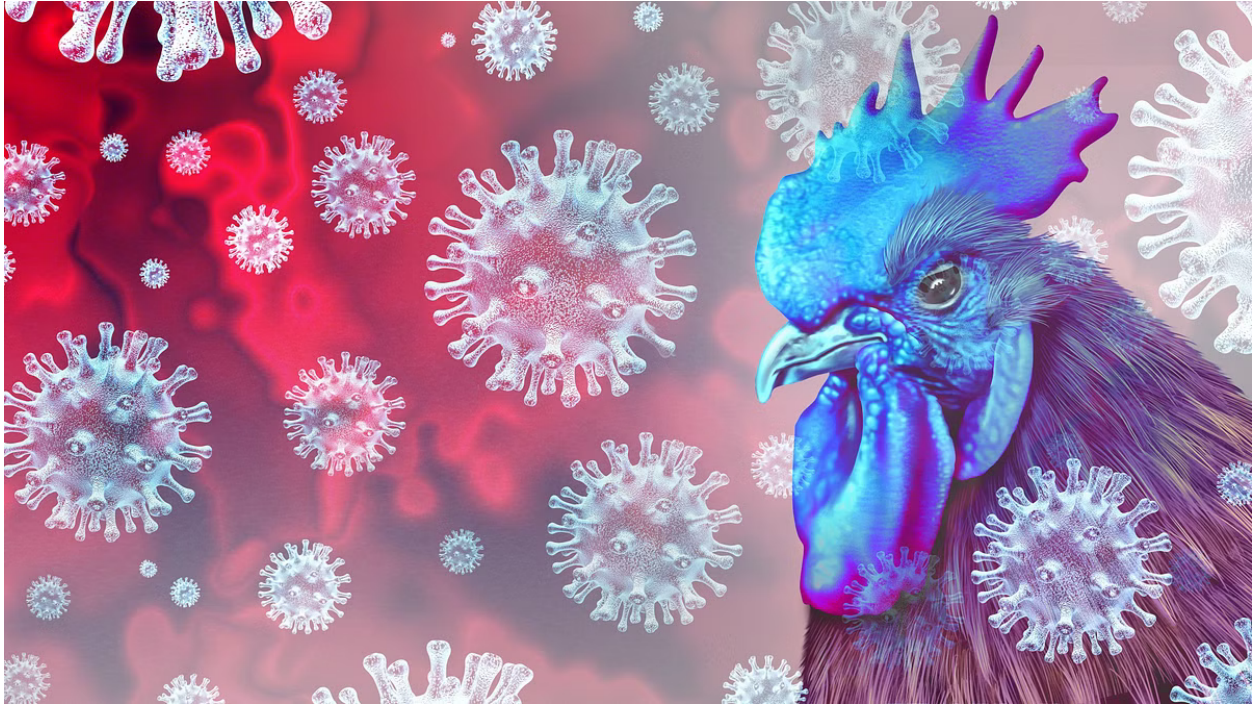
More on the Topic:

- To meet the positioning, navigation and timing requirements of the nation, ISRO has established a regional navigation satellite system called Navigation with Indian Constellation (NavIC).
- NavIC was erstwhile known as Indian Regional Navigation Satellite System (IRNSS).
- **NavIC is designed with a constellation of 7 satellites and a network of ground stations operating 24 x 7.**
- Three satellites of the constellation are placed in geostationary orbit and four satellites are placed in inclined geosynchronous orbit with equatorial crossing.
- **NavIC offers two services: Standard Position Service (SPS) for civilian users and Restricted Service (RS) for strategic users.**
- NavIC coverage area **includes India and a region up to 1500 km beyond Indian boundary.** NavIC signals are designed to provide user position accuracy better than 20m.
- NavIC SPS signals are **interoperable with the other global navigation satellite system (GNSS) signals namely GPS, Glonass, Galileo, and BeiDou.**
- A new civilian signal is being introduced in L1 band (1575.42 MHz).
- NavIC L1 signal is also **interoperable with the other GNSS signals.** All forthcoming (2022-23 onwards) NavIC satellites will broadcast SPS signals in L1, L5 and S bands.

Source: Hindu

5.H3N8 Flu Virus

Topic: Environment and Ecology



In News: WHO recently announced about a human death due to the rare H3N8 bird flu virus, subtype of avian influenza. butterfly H3N8 bird flu.

More on the Topic:

- The reported Chinese woman's death is the first death due to bird flu strain that is rare in humans.
- Avian influenza—known informally as avian flu or bird flu—refers to “influenza caused by viruses adapted to birds”.
- Most avian influenza viruses do not infect humans, however, some, such as A(H5N1) and A(H7N9), have caused serious infections in people.
- There is no evidence of easy human-to-human transmission of H3N8 bird flu.

Source: Business Standard

6. Ranganath Mishra Commission

Topic: Social Justice

'COMPLEX, CONSTITUTIONAL QUESTION'

<p>➤ The Constitution (Scheduled Castes) Order, 1950, states SC status can only be accorded to Hindus, Sikhs and Buddhists</p>	<p>Constitutional question given its sensitivity and potential impact', govt's gazette notification says change in definition of SCs can only be done on the basis of a detailed study</p>
<p>➤ While BJP has been opposed to giving SC status to Dalit converts to Islam and Christianity, forming a panel suggests the party is exercising caution against any legal pitfall</p>	<p>➤ Panel to also study changes Dalits go through on converting to other religions in terms of their customs, traditions, social and other status, as well as discrimination and deprivation</p>
<p>➤ Calling it 'a seminal & historically complex sociological and</p>	<p>Ex-CJI KG Balakrishnan will head the 3-member panel</p>

In News: Supreme Court stated that government may need to re-check its stance on Ranganath Mishra report.

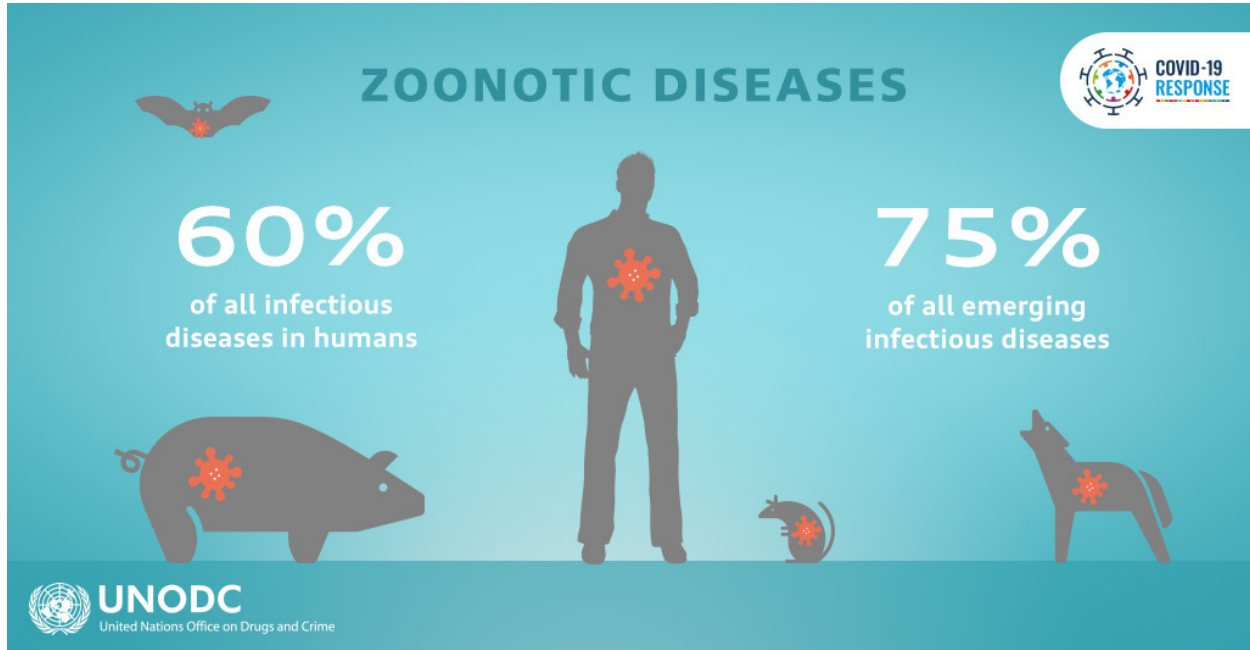
More on the Topic:

- The matter of providing the Scheduled Caste quota benefits to Dalits who converted to Christianity or Islam has come up before earlier governments as well.
- The Ranganath Mishra Commission's report submitted in 2007 recommended that **SC status be completely delinked from religion and be made religion-neutral like STs.**
- It had recommended permitting Dalits who converted to Islam and Christianity to avail Scheduled Caste status.
- However, the then government rejected the proposal on grounds that it was not substantiated by field studies.

Source: Indian Express

7. Safety Across Asia for the Global Environment (SAFE)

Topic: Environment and Ecology



In News: China has chosen not to participate in a United Nations project SAFE.

More on the Topic:

- The project is designed to survey **Asian wet markets and other similar facilities that pose a high risk of spreading infectious diseases from animals to humans.**
- It was launched in July 2021 and initially involved four countries, China, Laos, Thailand, and Vietnam.
- However, after China declined to join, the Malaysian state of Sabah on Borneo Island was selected to replace it.
- The project's scientific advisory committee selected the countries because they host multiple facilities that increase the risk of zoonotic disease transmission, especially in the wake of major wildlife trafficking cases.

Source: Business Standard